H. T. HARVEY & ASSOCIATES
ECOLOGICAL CONSULTANTS

Programmatic Environmental Impact Report for the Humboldt Bay Regional *Spartina* Eradication Plan

Volume 2

Response to Public Comments
And
Mitigation Monitoring and Reporting Plan

Prepared for:

California State Coastal Conservancy
1330 Broadway
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p (510) 286-1015

Prepared by:

H. T. Harvey & Associates

and

GHD

21 March 2013 Project No. 3192-02

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Introduction

The Draft Programmatic Environmental Impact (PEIR) for the Humboldt Bay Regional Spartina Eradication Plan was circulated for public review from November 30, 2012 – January 15, 2013. Following are the public's comments in their entirety, responses to comments and the PEIR's Mitigation Monitoring and Reporting Plan. This document (Volume 2) is organized as follows:

- Section 1 (Pages 2-41) contains comments from public agencies and non-governmental agencies and related responses
- Section 2 (Pages 42-72) contains comments from individuals and related responses
- Section 3 (Pages 73-75) contains Master Responses, which pertain to both agency and individual comments
- Section 4 (Pages 76-77) lists the references cited in this volume
- Section 5 (Pages 78-89) is the Mitigation Monitoring and Reporting Plan

Volume 1 contains the Final PEIR, which includes the CEQA-required information and analysis in nine chapters and an executive summary, and into which the changes to the Draft PEIR (described below) have been incorporated.

Section 1: Comments from Public Agencies and Non-Governmental Agencies and Responses

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January 15, 2013

File Ref: SCH #2011012015

Joel Gerwein
California Coastal Conservancy
1330 Broadway, 13th Floor
Oakland, CA 94612
jgerwein@scc.ca.gov

Subject: Draft Programmatic Environmental Impact Report (PEIR) for the Humboldt Bay Regional Invasive *Spartina* Eradication and Native Salt Marsh Restoration, Humboldt County

Dear Mr. Gerwein:

The California State Lands Commission (CSLC) staff has reviewed the subject Draft PEIR for the Humboldt Bay Regional Invasive *Spartina* Eradication and Native Salt Marsh Restoration (Project), which is being prepared by the California Coastal Conservancy (Conservancy). The Conservancy is the lead agency under the California Environmental Quality Act (CEQA) (Pub. Resources Code, § 21000 et seq.). The CSLC is a trustee agency because of its trust responsibility for projects that could directly or indirectly affect sovereign lands, their accompanying Public Trust resources or uses, and the public easement in navigable waters. Additionally, because the Project involves work on sovereign lands, the CSLC will act as a responsible agency.

CSLC Jurisdiction and Public Trust Lands

The CSLC has jurisdiction and management authority over all ungranted tidelands, submerged lands, and the beds of navigable lakes and waterways. The CSLC also has certain residual and review authority for tidelands and submerged lands legislatively granted in trust to local jurisdictions (Pub. Resources Code, §§ 6301, 6306). All tidelands and submerged lands, granted or ungranted, as well as navigable lakes and waterways, are subject to the protections of the Common Law Public Trust.

As general background, the State of California acquired sovereign ownership of all tidelands and submerged lands and beds of navigable lakes and waterways upon its admission to the United States in 1850. The State holds these lands for the benefit of all people of the State for statewide Public Trust purposes, which include but are not limited to waterborne commerce, navigation, fisheries, water-related recreation, habitat preservation, and open space. On tidal waterways, the State's sovereign fee ownership extends landward to the mean high tide line, except for areas of fill or artificial accretion or where

the boundary has been fixed by agreement or a court. On navigable non-tidal waterways, including lakes, the State holds fee ownership of the bed of the waterway landward to the ordinary low water mark and a Public Trust easement landward to the ordinary high water mark, except where the boundary has been fixed by agreement or a court. Such boundaries may not be readily apparent from present day site inspections.

As noted in CSLC staff's comment letter on the Notice of Preparation, portions of the Eel River Delta and the Mad River Estuary, over which the proposed Project will extend, include State-owned sovereign land. State sovereign land in the Eel River Delta includes the Eel and Salt Rivers and Cutoff, Hawk, Hogpen, McNulty, Morgan, Mosley, Quill, and Sevenmile Sloughs. In the Mad River Estuary, sovereign land includes the Mad and Little Rivers. A lease and formal authorization for the use of sovereign land will be required from the CSLC for the portion of the Project encroaching on State-owned land. Please contact Beverly Terry, Public Land Management Specialist, at the contact information listed at the end of this letter for further information on jurisdiction and leasing.

The part of the proposed Project in the Humboldt Bay Management Area is located on lands granted to the Humboldt Bay Harbor, Recreation and Conservation District (District) and the cities of Eureka and Arcata. Therefore, authorization from the CSLC for the Project on these lands is not required. The District and the cities of Eureka and Arcata should be contacted to address any lease/permit requirements for this portion of the Project.

Project Description

A coalition of local, state and federal agencies and non-governmental organizations proposes to adopt and implement the Humboldt Bay Regional *Spartina* Eradication Plan (Regional Plan) to meet the proponents' objectives and needs as follows:

- Objective 1: By 2013, a regional program will be in place to coordinate efforts to eradicate the invasive cordgrass species *Spartina*, and *Spartina densiflora* in particular, from all lands within the Management Area in collaboration with the larger West Coast invasive *Spartina* eradication program.
- Objective 2: By 2018, tidal marshes in the Management Area will be dominated by native tidal marsh plant species.
- Objective 3: Tidal marshes in the Management Area will be protected against future *Spartina* invasions by prevention, early detection, and rapid response.

Based on the Project Description in the Draft PEIR, CSLC staff understands that the Project would involve the following components:

- Designation of a regional coordinating agency that will help ensure comprehensive and coordinated implementation of the Plan;
- Establishment of criteria for prioritizing sites for *Spartina* control and a general timeline for *Spartina* control;

- Development of site-specific *Spartina* control plans, designed for multiple *Spartina* treatment stages (i.e., primary treatment, resprout treatment, seedling treatment, maintenance treatment, revegetation and seed suppression);
- *Spartina* and salt marsh monitoring; and
- *Spartina* control related outreach activities.

The Draft PEIR identifies the proposed Project, Use of Chemical and Mechanical *Spartina* Control Methods, as the Environmentally Superior Alternative.

Environmental Review

CSLC staff requests that the Conservancy consider the following comments on the Project's Draft PEIR.

Programmatic Document

1. Site-Specific Plans and Mitigation. Because the Project is being proposed under a "Programmatic" rather than a "Project-level" EIR, certain site-specific impact evaluations, such as those related to presence of special-status species, cultural resources and soil contamination, are, understandably, beyond the scope of the PEIR. To account for site-specific unknowns, a number of mitigation measures identified in the Draft PEIR require site-specific assessments to determine the need for particular changes to control activities for that area; however, several of these mitigation measures do not specify the criteria that these assessments would need to meet or the thresholds that would trigger further mitigation. Pursuant to the State CEQA Guidelines,[1] mitigation should either be presented as *specific*, feasible, enforceable obligations, or should be presented as formulas containing "performance standards which would mitigate the significant effect of the project and which may be accomplished in more than one specified way" (emphasis added) (State CEQA Guidelines, § 15126.4, subd. (b)). CSLC - 1

   Documenting the particular procedures that the Regional Coordinator and other proponents will follow in determining and minimizing impacts not only provides trustee and responsible agencies the information necessary to comment on the adequacy of the PEIR's mitigation measures, but would also later improve consistency among the site-specific control plans. Although the Regional Coordinator's lead role in preparing these control plans will help standardize these plans and any supporting surveys and assessments, formalizing this information in either the Final PEIR or the Final Regional Plan would act as an added assurance that individual control efforts are consistent with the Regional Plan and avoid significant environmental impacts. Mitigation measures that would benefit from identification of specific criteria or formulas include the following:

[1] The State "CEQA Guidelines" are found in Title 14 of the California Code of Regulations, commencing with section 15000.

a. Mitigation BIO-4: The measure identifies actions to be taken in areas with the potential for eelgrass, but does not specify the procedure for identifying areas with this potential (e.g., historical records, site characteristics, site survey, etc.). Please clarify in the mitigation measure how the initial determination for eelgrass potential will be made at a given site.

b. Mitigation CR-2: The measure prohibits soil disturbing control methods in areas where, "during site specific planning there are indications that artifacts are likely to be found (e.g., literature describing the nearby presence of artifacts)". The Regional Plan goes into more detail on the resources available for such planning, such as the Native American Heritage Commission (NAHC), the State Office of Historical Preservation's North Coastal Information Center (NCIC), and the U.S. Fish and Wildlife Service's (USFWS) Regional Cultural Resources Office, and adds that "the Regional Coordinator will work with the [Wiyot] Tribe to ensure that cultural resources are protected throughout the *Spartina* eradication process" (Regional Plan, p. 81).

CSLC - 1 (Cont.)

Neither the PEIR nor the Regional Plan, however, spells out the minimum that will be required, in terms of surveys or literature searches, for site-specific planning where soil disturbing control methods are proposed. Will the Regional Coordinator consult the Wiyot Tribe, the NAHC and the NCIC for every control effort? For areas that have not been previously surveyed, or for which no information is available, will pre-activity surveys be performed before soil disturbance? In particular instances? As a programmatic document, the PEIR need not analyze all of the sites in depth, but does need to provide more specific information on the "formula" to be used in determining whether or not mitigation is necessary for a given control effort and, if necessary, what level of mitigation. Without this level of detail, staff cannot comment on the adequacy of the mitigation measure in reducing potential impacts to unknown cultural resources from soil disturbing control methods, particularly for efforts using large equipment or amphibious vehicles.

c. Mitigation WQ-4: The measure prohibits soil disturbing control methods where "contaminants are present or assumed to be present at levels of concern (but below levels that might trigger site cleanup)" (Draft PEIR, p. 124). Please clarify in the mitigation measure how "levels of concern" will be determined (e.g., North Coast Regional Water Quality Control Board-defined thresholds, etc.).

d. Mitigation WQ-7: The measure requires that wrack be removed or mulched in "treatment areas located within or adjacent to waters known or expected to have depressed dissolved oxygen (DO)" (Draft PEIR, p. 125); however, neither the measure nor the Regional Plan describes what resources or surveys will be relied on to identify waters known or expected to have depressed DO. Please add an explanation of the process for determining depressed DO to either the Regional Plan or the PEIR.

Biological Resources

2. Impacts to Nesting Birds: In its analysis of Impact BIO-5, the Draft PEIR finds that the temporary and limited loss of nesting and foraging habitat for the northern harrier (*Circus cyaneus*) and the short-eared owl (*Asio flammeus*), both California Species of Special Concern, constitutes a less than significant impact; however, the PEIR does not address or dismiss potential, direct impacts to these birds' active nests, as both species are ground-nesting. To adequately characterize the Project's potential impacts to special-status species, please add a discussion of potential disturbance, if any, to active northern harrier and short-eared owl nests in treatment areas. CSLC - 2

3. Construction Buffers: To avoid disturbance of nesting special-status birds, Mitigation BIO-2 establishes a buffer of 50 meters (m) or 100 m between brushcutters or airboats, respectively, and special status bird species. To support the PEIR's analysis that the buffers are conservatively protective, please add an explanation of how those particular distances were selected. CSLC - 3

Thank you for the opportunity to comment on the Draft PEIR for the Project. As a responsible and trustee Agency, the CSLC will need to rely on the Final PEIR for subsequent tiered CEQA documents and issuance of any lease as specified above and, therefore, we request that you consider our comments prior to certification of the PEIR.

Please send copies of future Project-related documents, including electronic copies of the Final PEIR, Mitigation Monitoring and Reporting Program (MMRP), Notice of Determination (NOD), CEQA Findings and, if applicable, Statement of Overriding Considerations when they become available, and refer questions concerning environmental review to Sarah Sugar, Environmental Scientist, at (916) 574-2274 or via e-mail at Sarah.Sugar@slc.ca.gov. For questions concerning archaeological or historic resources under CSLC jurisdiction, please contact Senior Staff Counsel Pam Griggs at (916) 574-1854 or via email at Pamela.Griggs@slc.ca.gov. For questions concerning CSLC leasing jurisdiction, please contact Beverly Terry, Public Land Management Specialist, at (916) 574-0343, or via email at Beverly.Terry@slc.ca.gov.

Sincerely,

Cy R. Oggins, Chief
Division of Environmental Planning
and Management

cc: Office of Planning and Research
Beverly Terry, LMD, CSLC
Sarah Sugar, DEPM, CSLC
Eric Milstein, Legal, CSLC
Pam Griggs, Legal, CSLC

Joel Gerwein, Project Manager
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jgerwein@scc.ca.gov

Re: Comments on the Draft Programmatic Environmental Impact Report for the Humboldt Bay Regional *Spartina* Eradication Plan

Dear Mr. Gerwein,

On behalf of the board, staff and supporting members of Humboldt Baykeeper, Californians for Alternatives to Toxics, and Friends of the Eel River, these comments are submitted regarding the Draft Programmatic Environmental Impact Report ("PEIR" or "Project") for the Humboldt Bay Regional *Spartina* Eradication Plan ("Regional Plan"), which covers 1007 acres in Humboldt Bay, 656 acres in the Eel River estuary, and 7.4 acres in the Mad River estuary for a total of 1671 acres.

Humboldt Baykeeper, Californians for Alternatives to Toxics, and Friends of the Eel River appreciate the effort that has been expended by the California Coastal Conservancy ("Conservancy") to develop this Regional Plan and the environmental review that has been conducted. We appreciate the opportunity to present you with our concerns regarding this PEIR. HBK - 1

We support the goals of the Regional Plan, but strongly oppose the use of herbicides in Humboldt Bay and the Eel and Mad River estuaries. The Regional Plan would allow spraying the aquatic herbicide "imazapyr" on hundreds of acres of salt marshes, despite the fact that non-chemical methods like mowing and weedwhacking have proven to be highly effective.

We urge the Conservancy to adopt Alternative 1, Mechanical Methods Only, for the *Spartina* Eradication Programmatic EIR, or at the very least, to adopt a policy of last resort for herbicides within the plan's Management Area.

Alternative 1 is the least environmentally damaging alternative, and is clearly feasible to achieve the goals of the Regional Plan. Effective mechanical methods for eradicating and controlling *Spartina densiflora* were developed after many years of on-the-ground research. These mechanical methods have proven quite successful, and *Spartina* has been effectively controlled on most of the salt marshes within the Humboldt Bay National Wildlife Refuge using these methods.

Effective mechanical methods were developed by local experts who accepted the community's overwhelming opposition to herbicides and pesticides, particularly on or near public lands and waterways. We support and applaud these efforts, and we are deeply concerned that attempts to use herbicides will be strongly opposed by the community and could jeopardize overall eradication efforts.

HBK - 1 (Cont.)

The Regional Plan fails to disclose the number of acres that could be treated with herbicides in any given year, only stating that "the specific number of acres to be treated each year will depend on a number of factors, including acquisition of all relevant permits and the availability of sufficient funding and other resources" (Regional Plan at 45).

HBK - 2

Nor does the Draft PEIR include site-specific analysis of herbicide use, which precludes site-specific impacts analysis. This omission also precludes appropriate public notification and the opportunity for review and comment on site-specific concerns.

HBK - 3

Both the cities of Arcata and Eureka—the largest cities in the project area as well as in Humboldt County—only allow herbicides and pesticides as a last resort, according to policies adopted in 2004 and 2011 respectively (Draft PEIR at 58). Arcata's pest control ordinance (Ordinance # 1300 is available at http://www.alternatives2toxics.org/arcata_pesticide_ordinance_no_1300.htm) prohibits the use of pesticides on City owned or managed property except what is allowed by the Pest Control Management Plan as approved by the City Council after public hearing. The Plan currently allows only least toxic "natural" pesticides such as corn gluten. Eureka's Plan allows the use of several common pesticides and has followed the policy with very little pesticide use since implementation. The proposed plan should respect and comply with the Cities' pesticide policies, and we believe the policy of last resort for herbicide use should be extended throughout the project area.

HBK - 4

Risks to human health and the environment should not be taken when there are safe, effective alternatives to achieve the stated goal of the Regional Plan to eradicate *Spartina densiflora* from the Management Area.

HBK - 5

General Concerns with the Aquatic Use of Imazapyr

- Imazapyr is highly mobile and quite persistent in the environment, two factors that contribute to the ability of this herbicide to cause long-term impacts on non-target plants near treated sites.[1]

HBK - 6

- **Drift:** Because imazapyr is a non-selective, broad-spectrum herbicide, drift and/or runoff to non-target plants will cause damage near application sites. U.S. EPA's risk assessment for imazapyr indicates that non-crop uses of imazapyr by ground

HBK - 7

[1] Dr. Susan Kegley, PhD, Senior Scientist /Program Coordinator, Pesticide Action Network, on behalf of Californians for Alternatives to Toxics for the Humboldt County Superior Court, Feb. 2008.

spray are likely to exceed EPA's Levels of Concern ("LOC") for non-target plants as a result of runoff and spray drift.[2] The incoming tides could spread the herbicide far and wide, potentially exposing rare native plants, eelgrass, fish, and shellfish. Drift would be particularly difficult to control in areas subject to tidal action, such as marshes occupied by *Spartina*.

HBK - 7 Cont.

- **Long-Term Impacts:** Habitat® (the aquatic formulation of imazapyr) was first registered in California in August of 2005. Insufficient time has elapsed to assess any long-term impacts of repeated use of imazapyr in aquatic environments with any certainty.

HBK - 8

- **Bioaccumulation:** According to a 2009 risk assessment,[3] relatively few studies have been conducted examining biological uptake (bioaccumulation) and persistence of imazapyr in tissues. Of two studies cited in this reference one studied clams for 28 days, while the other measured imazapyr concentrations after 3 hours and "thereafter" – hardly the depth of knowledge one would hope to rely on for risk assessments.

HBK - 9

- **Synergistic Effects:** Combinations of chemicals that mix in uncontrolled settings can have synergistic effects that are not examined in the pesticide registration process. These potential effects have not been analyzed in the PEIR or in the laboratory.

HBK - 10

- **Lack of Field Studies:** Like most pesticides, the chemicals proposed for use have been tested in controlled experiments in laboratories, with little to no research on the short-term, long-term, or cumulative effects of its use in the field. This is of particular concern in wildland and aquatic settings, where numerous variables exist that have not been examined in controlled laboratory settings.

HBK - 11

A poignant example of the type of unknown risks that are not examined in laboratory studies is a recent study on the effects of an oil spill in San Francisco Bay[4]. Unexpectedly high mortality of Pacific herring embryos spawned several months following the spill occurred in oiled sites, but mortality was absent in sites that were not oiled. This high mortality at very low oil concentrations was attributed to the dramatic increase in toxicity of bunker fuel oil when oil-exposed embryos were also exposed to sunlight. This phenomenon, called "phototoxicity," is caused by activation of oil-associated chemicals in the transparent herring embryos by natural ultraviolet radiation. Similar unforeseen impacts could occur with the use of imazapyr.

HBK - 12

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[2] Dr. Susan Kegley, PhD, Senior Scientist /Program Coordinator, Pesticide Action Network, on behalf of Californians for Alternatives to Toxics for the Humboldt County Superior Court, Feb. 2008.
[3] AMEC Geomatrix, Inc. for the Washington State Department of Agriculture. 2009. Human Health And Ecological Effects Risk Assessment: Imazapyr Risk Assessment, Washington State.
[4] Incardona, J.P. et al. 2012. Unexpectedly high mortality in Pacific herring embryos exposed to the 2007 Cosco Busan oil spill in San Francisco Bay. Proceedings of the National Academy of Sciences: 109 (2) E51–E58.

Potential Impacts to Native Plants

- **Potential Reproductive Effects:** Imazapyr has the same mode of action as sulfonylurea herbicides, which pose high risks to non-target vegetation due to their unusual ability to impact plant reproduction even when obvious harm is not evident. Negative effects to plant reproduction can reduce the long-term survival of sensitive plants, and can also harm animals that rely on fruits and seeds as food sources. EPA researchers have shown that:

  > "…chlorsulfuron and perhaps other sulfonylurea herbicides appear to have influences on plant reproductions which are not characteristic of many common herbicides. This property would have gone unnoticed during the registration process since registrants are not required to submit any test data collected on mature and/or reproducing plants...It is accepted that chlorsulfuron and other sulfonylurea herbicides are 100 times more toxic to the vegetative growth of plants than older, commonly used herbicides such as atrazine and 2,4-D. Our data indicate that sulfonylurea herbicides are even more toxic to plant reproduction ...Analysis of spray-drift data collected under field conditions have been reported by Bird (1992) to range, depending upon meteorological conditions, from 0.02 to 2% of the application rate at distances as great as 1/4 mile from the application zone."[5]

HBK - 13

- **Potential to Inhibit Native Plant Recolonization:** It is not known whether imazapyr is likely to discourage colonization by native salt marsh plants. According to the Regional Plan, *Spartina* is known to exhibit tolerance to chemical pollution and other environmental stressors (p. B-16). These traits may allow *Spartina* a competitive advantage over native salt marsh plants. Since colonization by the desired native species is essential to the success of the Regional Plan, research to examine the impacts of imazapyr on colonization by native plants should be conducted before concluding that this impact would be less than significant.

- **Inadequate Mitigation to Protect Sensitive Plants:** The proposed mitigation of covering sensitive plant populations with barriers (MITIGATION BIO-3, Draft PEIR at 62) is not likely to be an effective mitigation for herbicide impacts. Areas occupied by sensitive plants such as Humboldt Bay owl's clover and Pt. Reyes bird's beak should be completely avoided and site-specific buffer zones should be established to protect them from drift caused by wind, waves, and tidal action.

[5] Fletcher, J.S., et al. 1996. Potential impact of low levels of chlorsulfuron and other herbicides on growth and yield of nontarget plants. *Environmental Toxicology and Chemistry*. 15(7):1189-1196.

Potential Impacts to Fish and Shellfish

- The use of soybean oil or vegetable oil as surfactants is certainly preferable to nonylphenol. However, the statement that such oils are not toxic to aquatic organisms because the oils float on the water surface (Draft PEIR at 84) is inadequate and fails to provide an analysis of potential impacts. Oils can block oxygen diffusion and can collect in shallow habitat areas that are essential for the growth and development of aquatic organisms, including federally listed species for which Humboldt Bay is designated Critical Habitat (including Coho and Chinook salmon, steelhead trout, tidewater goby, green sturgeon).

HBK - 14

Potential for Weed Resistance

- Imazapyr is an imidazolinone herbicide that belongs to a group of herbicides that act by inhibiting acetolactate synthase (ALS), an enzyme necessary for the production of essential amino acids within plants. At least 51 different herbicides currently in use are ALS inhibitors, including imidazolinones, pyrimidinylthiobenzoates, sulfonylureas, sulfonylaminocarbonyltriazolinone, and triazolopyrimidines. According to Kegley (2008), "In 2000, there were 73 weed species worldwide that had developed resistance to ALS-inhibitor herbicides. By 2008, this number had increased to 95 resistant species worldwide. Cross-resistance between different ALS-inhibitor herbicides is a well-known phenomenon; thus for example, a plant that is resistant to a sulfonylurea herbicide is likely to also be resistant to an imidazolinone herbicide because the mechanisms of action of the two herbicides are similar. The result is widespread and increasing weed resistance to ALS inhibitors, with overall herbicide resistance increasing exponentially[6].”

HBK - 15

Human Health Effects

- **Fish and Shellfish Consumption:** The plan does not propose any protections for the risk of exposure to people eating fish or shellfish harvested near spray sites, merely stating that such exposure poses minimal risks (Draft PEIR at 86).

HBK - 16

- **Worker Exposure Effects** The Draft PEIR (at 84-85) fails to consider exposure of volunteers participating in weed workdays. This is particularly of concern with regard to youth and school groups who often participate in such events sponsored by local non-profit organizations and governmental agencies. Fear of exposure to harmful chemicals could discourage volunteers from participating in weed workdays to help eradicate *Spartina*, which could be a detriment to the overall goals of the proposed project**.** Given the permanent reproductive damage to plants that was unknown until long after the chemicals had been approved for use, care

HBK - 17

[6] Dr. Susan Kegley, PhD, Senior Scientist /Program Coordinator, Pesticide Action Network, on behalf of Californians for Alternatives to Toxics for the Humboldt County Superior Court, Feb. 2008.

should be taken in the event that currently unknown long-term impacts on human health become evident in the future.

HBK - 17 (Cont.)

Water Quality Impacts

- Although water quality monitoring is required for dischargers of imazapyr (Draft PEIR at 120), the PEIR fails to include water quality monitoring plans to determine whether degradation of water quality is occurring as a result of herbicide application. Omission of specific monitoring provisions eliminates the ability to adequately assess impacts to water quality.

HBK - 18

- The presence of existing contaminants in sediments should not necessarily preclude the use of mechanical methods of *Spartina* eradication. Based on the measures prescribed in the mitigation measure WQ-4, herbicides should only be used as a measure of last resort. Concerns regarding bioaccumulation and synergistic effects of chemicals are more prevalent in areas of known or suspected contamination.

HBK - 19

Conclusion

We appreciate the opportunity to present these comments for your consideration. Based upon the reasons discussed above, we urge the adoption of Alternative 1, Mechanical Methods Only, for the Humboldt Bay Regional *Spartina* Eradication Plan.

Respectfully,

_____s/_____
Jennifer Kalt
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_____s/_____
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In Reply Refer To:

January 15, 2013

Joel Gerwein
Project Manager
State Coastal Conservancy
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Oakland, CA 94612

Mr. Gerwein,

The Humboldt Bay National Wildlife Refuge is an enthusiastic supporter of the effort to eradicate invasive Spartina densiflora from the marshes within Humboldt Bay and surrounding delta areas. We are grateful for the efforts put forth by the State Coastal Conservancy in developing this EIR and for taking a leading role in this region wide project to control this invasive plant.

FWS - 1

Invasive dense-flowered Spartina has infested over 90% of salt marshes in the three adjacent estuaries of Humboldt Bay, the Eel River Delta, and the Mad River Estuary. It is known to displace native vegetation, reducing the biodiversity of the salt marsh dramatically, reduce marsh productivity, and alter the benthic community. It is also beginning to colonize mudflats in the Bay. Mudflats provide critical foraging areas for migratory birds and are utilized for oyster culture, which is important to Humboldt Bay's economy. In light of the historical loss of 90% of the wetlands in Humboldt Bay, it is critical that we eradicate invasive Spartina and restore our remaining marshes and the biodiversity they support.

Due to the level of infestation, the Refuge feels that all available control methods should be options for treatment. Therefore we are recommending the adoption of the Proposed Project which includes both mechanical and chemical control methods. While the use of herbicide is potentially controversial and may face increased public scrutiny, their use would likely be limited to specific areas. Not having them as an available tool could negatively impact the potential for region wide eradication.

The Refuge looks forward to the implementation of the eradication project and will serve as a willing partner in these endeavors.

Sincerely,

Acting for
Eric Nelson
Refuge Manager
Humboldt Bay NWR Complex
Loleta, CA 95551

STATE OF CALIFORNIA -- NATURAL RESOURCES AGENCY Edmund G. Brown, Jr., Governor

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January 15, 2013

Mr. Joel Gerwein
California State Coastal Conservancy
1330 Broadway, 13th Floor
Oakland, CA 94612

RE: Draft Programmatic Environmental Impact Report for the Humboldt Bay Regional Invasive *Spartina* Eradication and Native Salt Marsh Restoration project (SCH No. 2011012015)

Dear Joel:

Thank you for the opportunity to comment on the draft programmatic environmental impact report (DPEIR) for the above-referenced coastal development project. We received the notice of completion and availability of the DPEIR in our North Coast District office on December 5, 2012. Please note that the following are comments of the Coastal Commission staff; the Commission itself has not reviewed the environmental document.

Summary

In general we are very supportive of the proposed project described in the "Humboldt Bay Regional *Spartina* Eradication Plan" (hereinafter "plan," H.T. Harvey & Assoc. 11/14/12) and applaud the plan's overarching goal of tidal marsh enhancement through invasive *Spartina* eradication from Humboldt Bay and the Mad and Eel River estuaries. This goal is consistent with major goals of the Coastal Act, which, as you know, contains policies to protect, enhance, and, where feasible, restore marine resources and the biological productivity of coastal waters and estuaries appropriate to maintain optimum populations of marine organisms and for the protection of human health (Sections 30230 and 30231).

As we stated in our February 1, 2011 comment letter on the Notice of Preparation for the DPEIR, the project site ("management area" described in the DPEIR), including private lands and local, state, and federal public lands, is located within the California Coastal Zone, mostly, if not entirely, within the Coastal Commission's original jurisdiction comprised of tidelands, submerged lands, and public trust lands. Thus, implementation of development (including "major vegetation removal") associated with the proposed plan will require the Commission's approval, either through the coastal development permit (CDP) process and/or the federal consistency process. The standard of review that the Commission must apply to development proposed under the plan within its jurisdiction is the Chapter 3 policies of the Coastal Act. If portions of the project site are located within the CDP jurisdictions of Humboldt County and/or the Cities of Eureka and/or Arcata, if requested by the applicant and the applicable local government and agreed to by the Commission's Executive Director, the Commission has the authority (pursuant to Section

30601.3 of the Coastal Act) to process a single consolidated CDP application for the project, using the Coastal Act as the standard of review. If the applicant, the local government, and the Commission's Executive Director do not agree to the CDP consolidation process, the applicant must obtain separate CDPs for proposed development in the Commission's jurisdiction and proposed development in the local government's jurisdiction. The local government's approval of the CDP would be appealable to the Coastal Commission pursuant to Section 30603(a) of the Coastal Act, since the project is located between the sea and the first public road paralleling the sea, and/or within 300 feet of the mean high tide line and within 100 feet of a wetland and/or estuary. It may be possible for the Commission to process a CDP (and if necessary concurrent federal consistency action) for proposed development region-wide over multiple years as we did in 2010, for example, for the Department of Fish and Game's regional dwarf eelgrass (*Zostera japonica*) eradication program in Humboldt Bay and the Eel River estuary. Please let me know if you would like additional information on permit streamlining options.

Our specific comments in the following section include recommendations for clarification or additional analysis in certain sections of the environmental document and the inclusion of additional mitigation to further minimize the potential for project impacts on visual resources, biological resources, water quality, and public access. In short, we recommend the following:

- Additional mitigation to minimize the project's potential significant visual impacts such as active replanting in denuded treatment areas that exceed a certain minimum size and limiting the size of areas that could be subject to plastic covering and perhaps minimizing the use of this treatment in any given area at a given time. SCC - 1
- Adding a significance criterion to Section 4.8.9 of the DPEIR related to the project's potential substantial adverse effects on coastal wetlands (similar to #3 for federal wetlands). SCC - 2
- Including, or elaborating on, an analysis of the maximum proposed application rate of imazapyr across the maximum acreage that potentially could be treated in the management area during a given timeframe to understand the project's potential to cumulatively result in aquatic concentrations and terrestrial doses of the herbicide that could be toxic to aquatic and terrestrial fauna. SCC - 3
- Potentially adding a mitigation measure that would restrict herbicide application temporally and spatially at the programmatic level (e.g., specifying a maximum acreage across the management area to be chemically treated in any given time period) to further minimize the potential faunal toxicity impacts. SCC - 4
- Analyzing whether imazapyr can be expected to "rapidly" degrade during cloudy and/or foggy conditions and potentially adding a mitigation measure limiting herbicide treatment to periods of sunny and/or fogless skies only. SCC - 5
- Including additional information and discussion on the potential impacts of the herbicide's surfactants and other adjuvants on aquatic and terrestrial fauna, including, but not limited to, the potential impacts to pelicans and other oil-sensitive species. SCC - 6
- Clarifying and revising Mitigation BIO-4 to explicitly state that no herbicide, brush cutting, or flaming treatments shall be used in proximity to native eelgrass plants and specifying appropriate buffer distances that must be applied between each treatment method and native eelgrass. SCC - 7
- Reevaluating the significance of hydrology/water quality threshold item (d) (related to whether the proposed project would alter existing drainage patterns or substantially increase the rate or amount of surface runoff that could result in flooding impacts) and proposing, as necessary, appropriate mitigation to mitigate any significant impact. SCC - 8

- Modifying Mitigation WQ-1 to specify that herbicide application shall not occur during periods of precipitation or high chance of precipitation to avoid the potential for rainwater to mobilize herbicide solution in contact with coastal waters. SCC - 9
- Potentially modifying Mitigation WQ-1 to restrict herbicide application temporally and spatially at the programmatic level to further minimize the potential water quality impacts. SCC - 10
- Potentially modifying Mitigation WQ-1 to include minimum buffer distances that must be applied between herbicide treatment areas and coastal waters. SCC - 11
- Supplementing Mitigation WQ-3 to require that only vegetable oil-based hydraulic fluids be used in heavy equipment and vehicles during *Spartina* eradication efforts, especially if the equipment is operated in the estuarine environment for a week or more at a time. SCC - 12
- Including additional mitigation requiring that biodiesel be used, where available, instead of petroleum diesel in heavy equipment and vehicles, especially if the equipment is to be operated in the estuarine environment for a week or more at a time. SCC - 13
- Supplementing the discussion of impacts associated with the placement of temporary structures for impoundment purposes in the context of the relevant Coastal Act policies and including appropriate mitigation as necessary to ensure project consistency with coastal regulations. SCC - 14
- Additional analysis on the potential maximum closure periods that could be applied to public trails and other public areas as a result of the proposed project and additional mitigation to further minimize public access impacts, such as ensuring that popular public access areas that may be affected by the proposed project remain open and accessible in full to the public during peak usage periods. SCC - 15

We believe that thoroughly addressing all relevant Coastal Act issues during the CEQA process will enhance the environmental document and facilitate the forthcoming coastal development permitting process for the proposed project. The comments below elaborate on the above bulleted list of recommendations.

Specific Comments

Aesthetic and Visual Resources. The DPEIR lists (pages 26-27) various policies and goals that as stated in the document "will affect and determine future visual resource conditions" of various types of scenic areas. The cited policies are contained in the County's draft General Plan update, and the DPEIR states that all will be supported by the proposed project. As the County's 2012 General Plan update is still in draft form and has not yet been certified by the Coastal Commission (for the portions of the document applicable to the coastal zone), the DPEIR should examine the project's consistency with the visual resource protection policies currently in effect in the management area, which include the certified Local Coastal Programs (LCPs) of the County, Arcata, and Eureka. In reviewing CDP applications for any development proposed under the plan within local government jurisdictions, each local government must make findings that the proposed development is consistent with its certified LCP. As discussed above, the standard of review that the Commission applies to proposed development within its jurisdiction is the Chapter 3 policies of the Coastal Act, including Section 30251, which states, in applicable part: SCC - 16

> *The scenic and visual qualities of coastal areas shall be considered and protected as a resource of public importance. Permitted development shall be sited and designed to protect views to and along the ocean and scenic coastal areas, to minimize the alteration of natural land forms, to be visually compatible with the character of surrounding areas, and, where feasible, to restore and enhance visual quality in visually degraded areas…*

The DPEIR proposes Mitigation AV-1 to mitigate the proposed project's potentially significant effects on scenic vistas, visual continuity, and visual clearing. This mitigation involves the posting of educational signs "in areas where public use is high" to aid in increased public understanding of the project with the expectation of improving "the public's reaction to the temporary adverse change to the scenic marsh vista." With this mitigation, the DPEIR asserts that the visual impacts will be mitigated to a less than significant level. Assuming, as shown in Figure 4-1 of the plan, that hundreds of acres of marsh are undergoing intensive chemical and mechanical treatment activities every year over a 5-year period, the result will be potentially hundreds of acres of brown, bare, and plastic-covered areas around the bay and estuaries visible for potentially five years, potentially from numerous public vantage points, including roads, highways, public lands, and other areas of high and low public usage. Although these visual impacts are expected to be temporary, they nonetheless would be incompatible with the character of surrounding areas, and, in our opinion, still significant, especially with respect to extensive and prolonged plastic-covered and denuded areas. Therefore, please consider including additional mitigation to minimize the project's potential significant visual impacts, such as requiring active replanting in denuded treatment areas that exceed a certain minimum size and limiting the size of areas that could be subject to plastic covering and perhaps minimizing the use of this treatment in any given area at a given time.

SCC - 16 (Cont.)

Biological Resources. Section 4.8.6 of the DPEIR lists various plans and documents that contain policies and standards for the protection of biological resources in the management area, including the LCPs of the County, Arcata, and Eureka. The section briefly discusses the policies in the context of the proposed project, though it does not mention or include a discussion of the Coastal Act policies that protect biological resources. As previously mentioned, the majority if not all of the management area is within the Commission's area of retained permitting jurisdiction requiring either a CDP or federal consistency approval, using the Coastal Act, rather than the LCPs, as the standard of review. As we stated in our February 1, 2011 comment letter on the NOP for the DPEIR, the Coastal Act contains several policies to protect marine resources, coastal waters, estuaries, wetlands, water quality, and environmentally sensitive habitats, including Sections 30230, 30231, 30232, 30233, and 30240:

SCC - 17

Section 30230:

> *Marine resources shall be maintained, enhanced, and where feasible, restored. Special protection shall be given to areas and species of special biological or economic significance. Uses of the marine environment shall be carried out in a manner that will sustain the biological productivity of coastal waters and that will maintain healthy populations of all species of marine organisms adequate for long-term commercial, recreational, scientific, and educational purposes.*

Section 30231:

> *The biological productivity and the quality of coastal waters, streams, wetlands, estuaries, and lakes appropriate to maintain optimum populations of marine organisms and for the protection of human health shall be maintained and, where feasible, restored through, among other means, minimizing adverse effects of waste water discharges and entrainment, controlling runoff, preventing depletion of ground water supplies and substantial interference with surface water flow, encouraging waste water reclamation, maintaining natural vegetation buffer areas that protect riparian habitats, and minimizing alteration of natural streams.*

Section 30232:

> *Protection against the spillage of crude oil, gas, petroleum products, or hazardous substances shall be provided in relation to any development or transportation of such materials. Effective*

containment and cleanup facilities and procedures shall be provided for accidental spills that do occur.

Section 30233 (in applicable part):

(a) The diking, filling, or dredging of open coastal waters, wetlands, estuaries, and lakes shall be permitted in accordance with other applicable provisions of this division, where there is no feasible less environmentally damaging alternative, and where feasible mitigation measures have been provided to minimize adverse environmental effects, and shall be limited to the following:

…

(6) Restoration purposes

…

(*c*) *In addition to the other provisions of this section, diking, filling, or dredging in existing estuaries and wetlands shall maintain or enhance the functional capacity of the wetland or estuary…*

SCC - 17 (Cont.)

Section 30240:

(a) Environmentally sensitive habitat areas shall be protected against any significant disruption of habitat values, and only uses dependent on those resources shall be allowed within those areas.

(b) Development in areas adjacent to environmentally sensitive habitat areas and parks and recreation areas shall be sited and designed to prevent impacts which would significantly degrade those areas, and shall be compatible with the continuance of those habitat and recreation areas.

Section 30107.5 of the Coastal Act defines ESHA as follows (in applicable part):

…any area in which plant or animal life or their habitats are either rare or especially valuable because of their special nature or role in an ecosystem and which could be easily disturbed or degraded by human activities and developments."

As mentioned earlier in this letter, the proposed plan's overarching goal of tidal marsh enhancement through invasive *Spartina* eradication is generally consistent with a major intent of the Coastal Act to protect marine resources, water quality, and sensitive habitats through the policies shown above (among others). However, we recommend additional mitigation (discussed below) to further protect marine resources, sensitive species, and environmentally sensitive habitats in and around the project area.

Sections 4.8.7 and 4.8.9 of the DPEIR refer to wetlands defined under Section 404 of the Clean Water Act. The document notes that all *Spartina*-infested areas are likely to be federal jurisdictional wetlands. The document also should note that wetlands in the coastal zone, as defined in the Coastal Act and the various LCPs, are defined differently than federal wetlands. The most specific definition of LCP and Coastal Act wetlands is found in Section 13577 of the California Code of Regulations, which defines wetland[1] as *"…land where the water table is at, near, or above the land surface long enough to promote the formation of hydric soils or to support the growth of hydrophytes, and shall also include those types of wetlands where vegetation is lacking and soil is poorly developed or absent…."* Therefore, in order to qualify as a wetland in the coastal zone, land must be at least periodically inundated or saturated for sufficient duration to result in a predominance of hydrophytes or a predominance of hydric soils.

[1] The definition in the Regulations was adapted from Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRue. 1979. *Classification of wetlands and deepwater habitats of the United States.* Office of Biological Services, U.S. Fish and Wildlife Service, Washington, D.C. The definitions of upland limits are identical to those of the Service.

There is no specific periodicity or duration of inundation or saturation required. The primacy of hydrology is implicit in the definition but is presumed adequate if either hydrophytic cover or hydric soils are predominant. Since all *Spartina*-infested areas are likely to be federal jurisdictional wetlands, those areas also qualify as coastal wetlands. But access routes, staging and stockpiling areas, and other areas appurtenant to the treatment areas may delineate as coastal wetlands but not federal wetlands. Section 4.8.9 of the DPEIR should add a significance criterion related to substantial adverse effects on coastal wetlands similar to #3 for wetlands as defined under federal law.

Impact BIO-4 discusses the potential effects of chemical control methods on special-status animal species that may inhabit the project area. The document notes that acute exposure could occur when herbicides are present in relatively high concentrations during and immediately following application. It also notes that herbicide solutions have the potential to affect organisms that live in the water column, including algae, non-target plants, fish and aquatic invertebrates. It goes on to state (page 63):

SCC - 17 (Cont.)

> *While some other receptors such as mammals and birds may spend a considerable portion of their time in the water, they are generally more likely to be affected by other exposure routes, primarily dermal contact during application and incidental ingestion of contaminated sediment during foraging (Kerr 2010). The period during which acute exposure could occur is short, because imazapyr rapidly degrades via photolysis.*

The document should be revised to include or elaborate on an analysis of the maximum proposed application rate of imazapyr across the maximum acreage that potentially could be treated in the management area during a given timeframe to understand the project's potential to cumulatively result in aquatic concentrations and terrestrial doses of the herbicide that could be toxic to aquatic and terrestrial fauna. Consideration should be given to adding a mitigation measure that would restrict herbicide application temporally and spatially at the programmatic level (e.g., specifying a maximum acreage across the management area to be chemically treated in any given time period) to further minimize the potential faunal toxicity impact. The document also should contemplate whether the imazapyr can be expected to "rapidly" degrade during cloudy and/or foggy conditions and consider adding a mitigation measure limiting herbicide treatment to periods of sunny and/or fogless skies only. Additional information and discussion should be included in Impact BIO-4 on the potential impacts of the herbicide's surfactants and other adjuvants on aquatic and terrestrial fauna, including, but not limited to, the potential impacts to pelicans and other oil-sensitive species.

Finally, Mitigation BIO-4 states:

> *Workers removing* Spartina *in areas with the potential for eelgrass shall be trained to recognize eelgrass. Only methods that avoid physical disturbance to eelgrass plants shall be used such as top mowing and excavation. With this mitigation measure, there will be no impact to eelgrass.*

For the sake of clarity, this mitigation measure should be revised to explicitly state that no herbicide, brush cutting, or flaming treatments shall be used in proximity to native eelgrass plants, and the mitigation should specify appropriate buffer distances that must be applied between each treatment method and native eelgrass (e.g., at least 250 feet between herbicide treatment areas and native eelgrass beds to account for potential drift of chemical spray).

Hydrology/Water Quality. The DPEIR lists (pages 114-117) various policies relevant to the proposed project, yet the cited policies are contained in the County's draft General Plan update, which, as discussed above, is still in draft form. The DPEIR also should include the water

SCC - 18

resources planning policies and standards currently in effect in the management area. As cited above, Sections 30231 and 30232 of the Coastal Act require the water quality protection of coastal waters, wetlands, streams, estuaries, and other waters.

The DPEIR states (on page 119) that threshold item (d) (as identified in the Initial Study), among others, is determined to be a less than significant impact and is therefore not discussed further in the environmental document. This threshold item relates to whether the proposed project would "*alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner, which would result in flooding on- or off-site*." One of the *Spartina* eradication treatment methods proposed in the plan, as described on page 18 of the DPEIR and 66 of the plan, is flooding. This technique would involve manipulating hydrology, as via a tidegate or by blocking a levee breach with an inflatable dam, to drown mature *Spartina* plants or inhibit *Spartina* seedling emergence. Since implementation of this treatment method would result in at least temporarily altering drainage patterns and potentially result in a substantial increase in surface runoff upon drainage of the temporarily flooded area, it may be appropriate to reevaluate the significance of threshold item (d) and propose appropriate mitigation to mitigate any significant impact.

SCC - 18 (Cont.)

Impact WQ-1 discusses the degradation of water quality due to herbicide application. The document notes (pages 119-121):

> *Using various application methods, herbicide mixtures would be applied directly onto the foliage or stems of non-native* Spartina *during low tides when the sediment is exposed. Herbicide mixtures may be directly released to surface waters when the incoming tide could wash remaining herbicide mixture off the foliage and/or from exposed sediment. During the Proposed Project application season as described in the Project Description, rainfall is unlikely to occur in the Management Area. The potential for concentrations of herbicides to be present in water will depend on canopy interception of the applied herbicide, uptake into the plants, uptake into the root zone, and aerial drift, if any. Since application of herbicides would take place during low tide and low wind conditions as designated by the Project Description, the herbicide(s) would likely be absorbed by plants for a minimum of several hours (up to several weeks in high marsh) following application, resulting in lower potential for imazapyr or surfactants to enter water…*
>
> …
>
> *…In water, imazapyr rapidly degrades via photolysis (Patten 2003, Pless 2005). A number of field studies demonstrated that imazapyr rapidly dissipated from water within several days and no detectable residues of imazapyr were found in either water or sediment within 2 months (Pless 2005)…*
>
> …
>
> *… Impacts to water quality from herbicide application depend on application methods, environmental fate, degradation rates of active agents, environmental conditions and decomposition products of the herbicides being utilized. The primary route by which herbicide solution may contact water is by overspray directly onto the water surface, or by washing off from plants due to tidal inundation or precipitation…*

Mitigation WQ-1 states in part that "*Herbicides shall be applied directly to plants and at low or receding tide to minimize the potential application of herbicide directly on the water surface, as well as to ensure proper dry times before tidal inundation*…" Mitigation WQ-1 should be modified to also specify that herbicide application shall not occur during periods of precipitation or high chance of precipitation to avoid the potential for rainwater to mobilize herbicide solution in contact with coastal waters. The mitigation measure also could, depending on the above-

recommended analysis of the maximum proposed application rate of imazapyr across the maximum acreage that potentially could be treated in the management area during a given timeframe, restrict herbicide application temporally and spatially at the programmatic level to reduce potential water quality impacts to less than significant levels. As discussed above for biological resources, Impact WQ-1 should also contemplate whether the imazapyr can be expected to "rapidly" degrade during cloudy and/or foggy conditions and consider adding mitigation or modifying Mitigation WQ-1 to limit herbicide treatment to periods of sunny and/or fogless skies only. Finally, it may also be appropriate for the mitigation to include minimum buffer distances that must be applied between herbicide treatment areas and coastal waters.

Impact WQ-3 discusses fuel and petroleum spills. As proposed, the plan involves the use of various mechanical control methods (e.g., mowing, grinding, rototilling, disking, crushing, etc.), some of which may use an amphibious tracked vehicle or standard heavy equipment. Leaks or spills of hydraulic fluids and fuel into the estuarine environment from the operation of amphibious vehicles and heavy equipment during *Spartina* eradication efforts pose a risk of adverse environmental impacts. Mitigation WQ- 3 is intended to minimize fuel and petroleum spill risks by requiring that fueling operations and storage of petroleum products be maintained off-site and requiring the development and implementation of a spill prevention and management plan to contain and clean up spills. The mitigation also prohibits the (non-emergency) servicing and fueling of transport vessels, vehicles, and other equipment in the field, among other specific BMPs "…*as appropriate to comply with the Basin Plan and the other applicable Water Quality Certifications and/or NPDES requirements*…"

SCC - 18 (Cont.)

We recommend supplementing Mitigation WQ-3 to include additional feasible mitigation measures to protect water quality and estuarine habitats from accidental spill impacts. For example, breaks in hydraulic lines are a relatively common occurrence in heavy equipment. Standard hydraulic fluids are based on petroleum products, such as mineral oils, which have high aquatic toxicity, a potential for bioaccumulation, and are not readily biodegradable. There are alternative non-petroleum hydraulic fluids available that have low aquatic toxicity, including vegetable oil-based hydraulic fluids or synthetic hydraulic fluids (e.g., polyglycols or synthetic esters). Vegetable oil-based hydraulic fluids are the best choice for use in heavy equipment and vehicles used in or near the estuarine environment, as they are formulated for low aquatic toxicity, do not bioaccumulate in aquatic organisms, and have rapid biodegradability. Synthetic hydraulic fluids also have low aquatic toxicity and do not bioaccumulate; however, synthetic esters are less biodegradable than vegetable oil-based hydraulic fluids, and only some polyglycols are biodegradable. Thus, although the synthetic hydraulic fluids are a better choice than petroleum-based hydraulic fluids, vegetable oil-based hydraulic fluids are the best choice for this situation. Vegetable oil-based hydraulic fluids are usually compatible with the seals and other components of engines used with petroleum-based fluids. In general, they function well, with good viscosity and lubricity. Most tend to oxidize more quickly than petroleum-based products, leading to formation of sludge; therefore, proper maintenance is important. Vegetable-oil based hydraulic fluids cost two to three times more than petroleum-based fluids; however, the cost of spill cleanup is much less compared to that of petroleum-based hydraulic fluids. We therefore recommend that additional mitigation requiring that only vegetable oil-based hydraulic fluids be used in heavy equipment and vehicles during *Spartina* eradication efforts, especially if the equipment is to be operated in the estuarine environment for a week or more at a time (i.e., such mitigation may not be appropriate for cases where the equipment may be rented for only a limited time for a smaller target area).

We also recommend including additional mitigation requiring that biodiesel be used, where available, instead of petroleum diesel in heavy equipment and vehicles during *Spartina* eradication efforts in the management area, especially if the equipment is operated in the estuarine environment for a week or more at a time. Biodiesel is a non-petroleum fuel that has considerably lower acute aquatic toxicity than petroleum diesel,[2] does not bioaccumulate in aquatic organisms, and biodegrades about twice as fast as petroleum diesel in soil.[3] Biodiesel will also naturally disperse more easily in the aquatic environment than petroleum diesel.[4]

Impact WQ-8 discusses the placement of temporary structures within a FEMA flood zone and states (in part):

> *…The specific regulatory considerations related to hydrology and geomorphology are those arising from local jurisdiction such as Humboldt County and FEMA obligations relative to minimizing flood hazards within flood hazard zones. Regulations pertinent to the Proposed Project are covered in policies stipulated by the local jurisdiction. While the Proposed Project does not propose placement of housing in the 100-year floodplain or Special FHA, placement of temporary dikes or structures to impound water to create prolonged inundation could displace and reduce floodplain/floodway carrying capacity within a special flood hazard zone. Impacts can be reduced to less-than-significant with implementation of the following mitigation measure.*

Mitigation WQ-8 states:

> *Temporary structures used to impound water for submerging* Spartina *including but not limited to earthen dikes, cofferdams, inflatable dams, geotextile tubes or concrete ecology blocks that are proposed for placement in a regulatory FEMA flood zone shall be reviewed and approved by the local floodplain administrator prior to placement.*

SCC - 18 (Cont.)

In addition to federal and local flood hazard regulations, the proposed development, including the construction or placement of temporary structures to impound water for submerging *Spartina,* will be subject to CDP and potentially federal consistency regulations. Section 30253 of the Coastal Act requires that new development minimize risks to life and property in areas of high geologic, flood, and fire hazards. It also requires that new development "*…assure stability and structural integrity and neither create nor contribute significantly to erosion, geologic instability, or destruction of the site or surrounding area…*" Section 30233(a)(6) of the Coastal Act allows for diking, dredging, and filling of coastal wetlands and waters for restoration purposes, but only in cases where there is no feasible less environmentally damaging alternative, where feasible mitigation measures have been provided to minimize adverse environmental effects, and where the biological productivity and functional capacity of the habitat will be maintained and enhanced. The DPEIR should supplement the discussion of impacts associated with the placement of temporary structures for impoundment purposes in the context of these Coastal Act policies and include appropriate mitigation as necessary to ensure project consistency with coastal regulations.

Land Use. The Land Use section of the document briefly discusses the project's potential impacts on public access. Since some of the proposed mechanical and chemical treatments could be unsafe for the public, and since some of the proposed treatment areas are located near or

SCC - 19

[2] Khan, N., M. Warith, and G. Luk. 2007. *A Comparison of Acute Toxicity of Biodiesel, Biodiesel Blends, and Diesel on Aquatic Organisms.* J. Air & Waste Manage. Assoc. 57:286–296.

[3] von Wedel, R. 1999. *Technical Handbook for Marine Biodiesel in Recreational Boats*. Marine Biodiesel and Education Project for San Francisco Bay and Northern California. Prepared for the National Renewable Energy Laboratory, U.S. Department of Energy.

[4] Hollebone, B. 2009. *Biofuels in the Environment: A Review of Behaviors, Fates and Effects & Remediation Techniques*. Environment Canada. Freshwater Spills Symposium. St. Louis, MO.

adjacent to public trails and waterways, the project could impact public access. The project proposes Mitigations LU-1 through LU-4 (pages 130-131 of the DPEIR) to mitigate public access impacts to a less than significant level. We recommend including additional analysis on the potential maximum closure periods that could be applied to public trails and other public areas as a result of the proposed project. We recommend including additional mitigation to further minimize public access impacts, such as ensuring that popular public access areas that may be affected by the proposed project remain open and accessible in full to the public during peak usage periods.

SCC - 19 (Cont.)

Conclusion

Thank you again for the opportunity to provide comments as part of the preparation of the environmental analysis. We look forward to future discussions with the Conservancy and other project stakeholders about the proposed plan in the months to come. If you have any questions or would like to discuss the project or these comments, please feel free to contact me.

Sincerely,

Melissa B. Kraemer
Coastal Planner

Cc: State Clearinghouse, Office of Planning & Research, P.O. Box 3044, Sacramento, 95812-3044

Ec: SCC, Joel Gerwein (jgerwein@scc.ca.gov); CCC Federal Consistency Division, Mark Delaplaine (Mark.Delaplaine@coastal.ca.gov); CCC Water Quality Unit, Vanessa Metz, Ph.D. (Vanessa.Metz@coastal.ca.gov); CCC North Coast District, Jim Baskin (Jim.Baskin@coastal.ca.gov); Humboldt Bay Harbor, Recreation & Conservation District, Dan Berman (dberman@portofhumboldtbay.org); Humboldt County Planning and Building Dept., Steve Werner (SWerner@co.humboldt.ca.us); City of Arcata, David Loya (dloya@cityofarcata.org) & Julie Neander (jneander@cityofarcata.org); City of Eureka, Lisa Shikany (lshikany@ci.eureka.ca.gov); California Department of Fish and Wildlife, Rebecca Garwood (Rebecca.Garwood@wildlife.ca.gov); State Lands Commission, Ninette Lee (Ninette.Lee@slc.ca.gov); North Coast Regional Water Quality Control Board, Dean Prat (DPrat@waterboards.ca.gov); U.S. Army Corps of Engineers, Kelley Reid (Kelley.E.Reid@usace.army.mil); U.S. Fish and Wildlife Service, Andrea Pickart (Andrea_Pickart@fws.gov); & Eric Nelson (Eric_T_Nelson@fws.gov)

City of ARCATA

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736 F Street
Arcata, CA 95521

January 15, 2013

Joel Gerwein, Project Manager
California Coastal Conservancy
1330 Broadway, 13th Floor
Oakland CA 94612

RE: Comments; Draft Programmatic Environmental Impact Report for the Humboldt Bay Regional *Spartina* Eradication Plan

Dear Mr. Gerwein:

The City has reviewed the Draft Programmatic Environmental Impact Report for the Humboldt Bay Regional *Spartina* Eradication Plan. While the City is supportive of a region wide plan to eradicate *Spartina*, the City has concerns regarding the use of herbicides.

The City's *General Plan 2020* Policy RC-1i recognizes the detrimental impacts of herbicides and pesticides and promotes safer alternatives. The City of Arcata *Pesticide Reduction Plan* does not include the use of Imazapry on its list of minimum risk active ingredients for City use and requires the use of all non-herbicidal management tactics first. Therefore the City of Arcata supports Alternative 1 - mechanical treatment only. The DPEIR states on pages 65 and 81 that the effectiveness of using the herbicides Imazapry on *Spartina* is uncertain and that its use does not provide proven additional benefit. ARC - 1

While there is documentation that Imazapry breaks down relatively quickly and is undetectable after two months, the short term impacts on the oyster industry, water fowl and other water associated wildlife that might encounter the herbicide should be better addressed in the PDEIR since the document also states that the surfactants will result on the herbicide floating on the water surface. On page 85 the PEIR states that pesticide drift can occur up to 250 feet, the PEIR should also provide more detail on how the wind restrictions will be enforced.

Thank you for the opportunity to provide comments.

Sincerely,

Mark André

MARK S. ANDRÉ
Director
Environmental Services Department

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Response to Comment CSLC-1

Section 4.8.11 of the PEIR has been modified as follows:

MITIGATION BIO-5: Avoid Impacts to Eelgrass. Workers removing *Spartina* in areas with the potential for eelgrass shall be trained to recognize eelgrass and the mudflats that are habitat for eelgrass. Training shall be conducted by a qualified biologist. Only methods that avoid physical disturbance to eelgrass plants shall be used in close proximity to eelgrass, such as top mowing and excavation. With this mitigation measure, there will be no impact to eelgrass.

MITIGATION CR-2: Site Specific Planning for Artifacts. Site specific planning will include a consultation with the Wiyot Tribe to determine the likelihood that artifacts are present. If ~~during site specific planning~~ there are indications that artifacts are likely to be found ~~(e.g., literature describing the nearby presence of artifacts)~~, soil disturbing methods shall be avoided.

MITIGATION WQ-4: Assess Existing Contamination. For projects where ground disturbance methods (such as digging or excavation) or imazapyr application are considered, a preliminary assessment shall be performed to determine the potential for contamination in sediments prior to initiating treatment. The preliminary assessment shall include (1) review of existing site data and (2) evaluation of historical site use and/or proximity to possible contaminant sources. If the preliminary assessment finds a potential for historic sediment contamination, an appropriate sediment sampling and analysis guide shall be followed and implemented, or soil contamination shall be assumed to be present. If contaminants with a known potential for synergistic effects with imazapyr are present or assumed to be present at levels higher than background levels, that would result in synergistic effects ~~(but below levels that might trigger site cleanup)~~, an alternative treatment method (that shall not disturb sediment or apply imazapyr) will be implemented, such as repeated top-mowing ~~or herbicide application~~, or the specific project shall apply to the Regional Water Board for site-specific WDR. If contaminants are present or assumed to be present at levels higher than background levels (but below levels that might trigger site cleanup), and these contaminants raise concerns for potential impacts from ground disturbance but not from synergistic effects due to imazapyr application, treatment methods that shall not disturb sediment (e.g., top mowing or imazapyr application) shall be used, or the specific project shall apply to the Regional Water Board for site-specific WDR. If significant contamination that warrants site cleanup is identified, sampling information shall be provided to the U.S. EPA or other appropriate authority.

MITIGATION WQ-7: Removal of Wrack. During site specific planning, tidal circulation will be visually assessed. In areas with relatively low tidal circulation, it will either be assumed that DO levels are depressed or monitoring will be conducted to determine if DO levels are depressed. In treatment areas located within or adjacent to waters known or expected to have depressed DO, if wrack is generated during the treatment process, the wrack shall be removed from the treatment area subject to tidal inundation or mulched finely and left in place.

Response to Comment CSLC-2

The Draft PEIR did discuss potential impacts to special status birds and incorporated surveys to determine whether potential nesting habitat or actual nesting was present in areas that could be disturbed by *Spartina* removal. The PEIR also included establishment of a buffer around special status bird species nests. However, it did not specifically discuss northern harriers and short-eared owls. Section 4.8.11 of the PEIR has been modified as follows:

IMPACT BIO-2: Effects on Special Status Birds. Breeding special status birds may be temporarily affected by noise caused by *Spartina* control equipment and vehicles. Disturbance due to noise will depend on many factors such as proximity to the noise, the levels of ambient noise, the nature of ambient noise, and the ability of birds to habituate to new noise. Control methods that create a potentially significant high level of noise are brushcutters, and methods that require airboats (e.g., amphibious vehicles). Without mitigation, noise impacts to birds could be potentially significant. In addition, northern harriers and short-eared owls may nest in the uplands adjacent to *Spartina* control areas, and their nests, which are located on the ground, could be directly impacted by *Spartina* control workers and equipment crossing these areas to reach *Spartina*. However, with implementation of the following mitigation measures impacts are less than significant.

MITIGATION BIO-3: Avoid Northern Harrier and Short-Eared Owl Nests.
The breeding season is March-August for northern harriers (Loughman and McLandress 1994) and March-July for short-eared owls (Gill 1977). If *Spartina* control activities are planned to occur during these periods (i.e., between March-August) then a qualified biologist will assess whether there is potential nesting habitat for northern harrier or short-eared owls. If there is potential habitat, it will be avoided or a qualified biologist will survey the potential habitat immediately prior to *Spartina* control work and if nests are found then a minimum 300 ft buffer zone will be delineated. The buffer zone will be avoided by *Spartina* control workers and equipment.

The following references have been added to Section 10 (Literature Cited) of the PEIR:

Gill, R.E. 1977. Breeding avifauna of the south San Francisco Bay estuary. Western Birds 8:1-12.

Loughman, D.L. and McLanders, M.R. 1994. Reproductive success and nesting habitats of northern harriers in California. California Waterfowl Association. 4630 Northgate Blvd. Sacramento, CA 95831.

Response to Comment CSLC-3

Section 4.8.11 of the PEIR has been modified as follows:

MITIGATION BIO-2: Minimize Noise Effects. Breeding special status birds could be present based on habitat and time of year. The breeding season is generally October through mid-August. On a project specific basis, a habitat analysis shall be done to determine if special status bird species have the potential to occur. If the habitat would support special status birds, and if eradication is planned to occur when these birds may be breeding, then surveys will be done to establish that these species are absent, using protocols approved by USFWS. If such surveys are not conducted, then the species will be assumed present. ~~Further research is required to determine actual sound levels generated by different control methods and to establish required buffer distances between brush cutters or airboats and special status bird species.~~ . Response of birds to noise varies by species as well as site specific factors including ambient noise levels, topography and vegetation. A limit of 60 dB reaching breeding songbirds has recently been advocated for the by the California Department of Fish and Wildlife (see ICF Jones and Stokes 2009). ~~However, for~~ For the purpose of this PEIR, if breeding birds are known or assumed present within close proximity to *Spartina* control activities than actions will be taken to ensure that ≤60 dB reaches the breeding area. Actions may include the use of sound measuring devices to determine the range of noise production and limit *Spartina* control methods accordingly (i.e., use quieter methods near breeding special-status birds). ~~a conservative distance of 50 m (for brushcutters) and 100 m (for airboats) is considered adequate to reduce the noise impacts on breeding special status bird species. Another mitigation measure that can be applied is to use quieter control methods (e.g., backpack herbicide sprayers, flooding, covering and flaming) near special status bird species.~~

The following reference has been added to Section 10 (Literature Cited) of the PEIR:

ICF Jones and Stokes. 2009. Technical Noise Supplement. Prepared for California Department of Transportation. Division of Environmental Analysis. 1120 N Street, Room 4301. Sacramento, CA 94274.

Response to Comment HBK-1

Comment noted.

Response to Comment HBK-2

(See Master Response 1)

Response to Comment HBK-3

The commenter is correct that the PEIR does not include site specific analysis of herbicide use. However, as described in the Humboldt Bay Regional *Spartina* Eradication Plan (Page 47), which is incorporated by reference into the PEIR, site specific plans will be developed prior to *Spartina* control efforts. If environmental effects are identified during site specific planning that were not adequately addressed in the PEIR, then additional CEQA documentation will be required, which may involve further public notification, review and input.

Response to Comment HBK-4

(See Master Response 1)

Response to Comment HBK-5

As described in the PEIR and Humboldt Bay Regional *Spartina* Eradication Plan, both mechanical and chemical methods have been used to successfully control *Spartina* and both have potential environmental effects. Having more methods available for treatment is expected to allow for more successful control of *Spartina* while minimizing environmental effects. For example, in some situations such as those where special status birds may be nesting nearby, repeated access by mechanical control crews and noise disturbance from mechanical control, while less than significant with mitigation, may still constitute a greater environmental impact than less frequent access by a smaller crew implementing chemical controls. Another circumstance in which chemical control may have less of an impact than mechanical control is an area at risk of erosion that also provides habitat for species that may be disturbed by noise and human disturbance. In these circumstances, utilizing a method that does not require ground disturbance, and that does not require frequent access by a mechanical control crew may have less of an environmental impact.

Response to HBK-6

The commenter references an expert declaration made by Dr. Susan Kegley on behalf of the Californians for Alternatives to Toxins (Feb. 2008). Dr. Kegley's declaration is related to potential effects of imazapyr when it is used to control purple loosestrife (*Lythrum salicaria*) along the Eel River, California. However, as noted by Dr. Kegley, the fate of imazapyr is not the same in a riverside environment as in tidelands where *Spartina* will be treated. Specifically, in the expert declaration, Dr. Kegley states that "When tidal marshlands are treated with an herbicide, the fate of the herbicide is quite different than that observed in a riverside setting. Studies tracking the fate and transport of imazapyr in tidal marshlands show that imazapyr concentrations are highest when the tide first comes in as the water initially washes over the treated area. The half-life of imazapyr in the treated part of the estuary of 1.6 days. **In short, the incoming tide washes away the water-soluble imazapyr**." (emphasis added). Sections 4.11 and 4.12 of the Draft PEIR summarize other relevant literature pertaining to persistence and mobility of imazapyr.

Response to HBK-7

(See Master Response 2)

Response to HBK-8

The State Coastal Conservancy believes there is adequate information available to support the conclusions made in the PEIR. Imazapyr was first registered in the United States in 1984, and first registered for aquatic use in 2003. The United States Environmental Protection Agency (USEPA) completed a reregistration review for this herbicide in 2006 which reviewed data for over 20 years of use of this herbicide. No significant environmental impacts from large scale use of imazapyr for *Spartina* control in an estuarine setting have been noted after ten years of use in Washington State or 8 years of use in San Francisco Bay. A 13 year study of the effects of imazapyr on salamander populations in a forest setting, where dissipation and breakdown is expected to occur much more slowly than in an estuary, found no effect (Homyack and Cass 2009). Salamanders are generally considered to be quite sensitive to contaminants, making the fact that imazapyr had no long term effects on salamander populations particularly notable. A seven year study found no long term effect of a broadcast imazapyr treatment in a loblolly pine plantation on herbaceous or woody plant composition, as indicated by overstory and understory plant species richness and diversity (Boyd et al 1995).

Imazapyr has a number of characteristics that make it highly unlikely to have long term impacts when used in a tidal environment like the project area. The herbicide is water soluble and breaks down

rapidly by photolysis, targets a metabolic pathway that is not present in animals, and does not have a potential to bioaccumulate because it remains in solution in water rather than concentrating in lipids. The herbicide's low potential to bioaccumulate is supported by bioconcentration studies with bluegill sunfish, eastern oyster, and grass shrimp (USEPA 2006). The low potential for imazapyr to impact animals is supported by the USEPA's decision not to place any restrictions on the use of water in imazapyr treatment areas for recreational purposes, including swimming and fishing, and not to place restrictions on livestock consumption of water from treatment areas (USEPA 2006). USEPA's reregistration review states that long-term aggregate risks from imazapyr related to people through food, drinking water, and residential exposure are below levels of concern. The reregistration review also states that there are no risks of concern to terrestrial birds, mammals, and bees, or to aquatic invertebrates and fish (USEPA 2006). The USEPA does cite imazapyr's potential for non-target plant impacts, and the potential for large scale use on aquatic plants to indirectly reduce dissolved oxygen levels by generating a large amount of dead plant tissue, with concomitant impacts on animals. The potential to lower dissolved oxygen levels in this manner is mitigated by tidal flows in the project area, by the fact that *Spartina* is a marsh plant rather than an aquatic plant, and that *Spartina* releases standing dead tissue to the Bay gradually, as well as by Mitigation Measure WQ-7.

Note also that the Project will utilize an adapative management approach, selecting the most effective and least environmentally damaging control methods based on information about specific sites and control methods that becomes available. Therefore, any new information about imazapyr impacts will be taken into account in the selection of control methods, allowing this method to be curtailed or discontinued if new findings warrant.

Response to HBK-9

The studies referenced by the commenter indicate a very low potential for bioaccumulation of imazapyr. In general, the potential for bioaccumulation is low because imazapyr is highly soluble in water, but has low solubility in lipids.

Response to HBK-10

The commenter does not indicate which chemical(s) that occur in the management area would be a concern with regards to mixing with imazapyr. To the State Coastal Conservancy's knowledge, there is not a chemical which occurs at a high enough level in the management area that it would have a synergistic effect with imazapyr.

Response to HBK-11

The Conservancy believes there is adequate information available to support the conclusions made in the PEIR. Notably, Patten's (2003) study of imazapyr's use in tidal environments support the PEIR's conclusions, as does the monitoring reports for 2007-2011 produced by the San Francisco Invasive Spartina Project. The conclusions of these studies and their citations follow.

Patten, K., 2003. Persistence and non-target impact of imazapyr associated with smooth cordgrass control in an estuary. J. Aquatic Plant Management 41:1-6.

Patten (2003) studied the persistence of imazapyr when used to control cordgrass in an estuary. Imazapyr was applied at 1.68 kg ae/acre (1.5 lbs ae/ acre) with 1% v/v Agri-Dex adjuvant. The persistence of imazapyr in water and sediment followed an exponential decay. The geometric mean of imazapyr concentration over 76 hours in the 0.6 to 20 m zone outside the spray area was 0.1 mg/L (or 100 µ g/L) in water and 3.2 µ g/g in fresh weight sediment. It was stated that these concentrations were 5 to 6 orders of magnitude lower than levels needed to affect aquatic invertebrates and fish. The imazapyr levels in water and sediment approached non-detect levels at 40 and 400 hrs, respectively, and the corresponding half-lives were reported in the range of <0.5 and 1.6 days, respectively.

Kerr, D. 2012. San Francisco Estuary Invasive Spartina Project Water Quality Monitoring Report for 2011. Prepared for the California State Coastal Conservancy. Available: www.spartina.org/project_documents/2011_WQMonRpt_Final-All.pdf.

The California State Coastal Conservancy's San Francisco Estuary Invasive Spartina Project (ISP) implemented their 2011 Water Quality Monitoring Plan in conjunction with the Bay-wide treatment of non-native *Spartina* (cordgrasses). Water samples and data on conventional water quality parameters were collected pre-treatment, immediately after the herbicide application, and one week after treatment at 13 sites (10% of the infestation sites where herbicide was utilized) in compliance with the Statewide General National Pollutant Dis-charge Elimination System (NPDES) Permit. This document reports on the results from 2011 and compares them to the overall trends from ISP water quality monitoring from 2007- 2010.

Water sampling immediately after *Spartina* treatment has consistently found that any imazapyr concentrations detected in the receiving waters are two to four orders of magnitude below those reported in the toxicology literature as a concern to humans or the animals that inhabit the associated tidal marsh system, including the benthic invertebrates at the foundation of the food web. The mean imazapyr concentration from the 2011 treatment event sampling was 89.63 ppb, which is very consistent with the four-year mean of 99.49 ppb from 2007-2010.

In addition, the one-week post-treatment sampling results are also consistent with the published literature that imazapyr is short-lived in an estuarine environment. In 2011, the mean reduction in the imazapyr concentration measured one week after treatment was 92.2%, no matter what concentration was previously measured from the treatment event, while the four-year mean reduction was 95.8% from 2007-2010. With the rapid degradation of this herbicide in the tidal marsh, as measured by the concentration in the water at the site one week after treatment, it is anticipated that all sites that still had measurable concentrations at that time would likely be below detectable levels within a few more days after the third sample.

The monitoring of conventional water quality parameters (water temperature, dissolved oxygen, pH, conductivity and salinity) verified that there is no indication that the herbicides application to invasive *Spartina* have had any impact on estuary surface water quality; this result was entirely anticipated because there is no relevant pathway for the treatment of an emergent plant to alter these parameters in this open system with twice-daily tidal exchange.

Response to HBK-12

There is some uncertainty regarding the potential effects of any *Spartina* control method. However, the Conservancy believes there is adequate information available to support the conclusions made in the PEIR. The information provided by the commenter does not relate to any known effects of imazapyr and the comment is speculative.

Response to HBK-13

As described in Draft PEIR Impact Bio-3, some temporary effects to native vegetation are expected. Eradication of *Spartina* is not feasible without allowing for these temporary effects. However, given the overall net benefit for special status plant species of removing invasive *Spartina*, and with implementation of the PEIR's mitigation measures, these effects are considered less than significant.

Response to HBK-14

The draft PEIR does not state that "oils are not toxic to aquatic organisms because the oils float on the water surface" as stated by the commenter. Rather, in reference to the proposed surfactants, the draft PEIR states "It is anticipated that these products would not present a hazard to aquatic life as they float on the water surface, are non-toxic, and are expected to disperse rapidly with tidal and wind action". Further information regarding the potential environmental effects and fate of surfactants is provided in the draft PEIR. For example, page 21 of the draft PEIR describes studies which found that surfactants are short lived in high-energy tidal environments such as those in the project area.

Response to HBK-15

Comment noted.

Response to HBK-16

The commenter is correct. The draft PEIR summarizes relevant information related to the potential environmental effects of imazapyr and surfactants and finds that they have a low and not significant potential to cause adverse human health effects.

Section 4.13.3 of the PEIR has been modified as follows:

> *MITIGATION LU-3. Mechanical Methods near Agriculture.* If crops (including aquaculture crops such as oysters and clams) are growing in the vicinity of spraying, such that these crops would be more difficult to sell even if herbicides are undetectable, mechanical methods of treatment shall be selected.

Response to HBK-17

As described in the draft PEIR, there is low potential for imazapyr and surfactants to cause adverse human health effects, including to volunteers. Volunteers would not typically work in areas that have been recently treated with imazapyr and imazapyr and the surfactants are expected to rapidly disperse.

Response to HBK-18

The draft PEIR and commenter are referring to a requirement of the State Water Resources Control Board's General Permit NO. CAG99005 that a discharger must comply with monitoring and reporting requirements. The details of these monitoring plans vary and if imazapyr is used, then these details will be determined and documented through the State Water Resources Control Board's regulatory permitting process. The draft PEIR does not include water quality monitoring as mitigation and does not rely on water quality monitoring to make any determination regarding the significance of potential environmental effects.

Response to HBK-19

Section 4.12.19 of the PEIR has been modified as follows:

> **IMPACT WQ-4: Pollutant/Contaminant Remobilization and Synergistic Effects of Imazapyr.** Treatment methods that include ground disturbance have the potential to expose

sediments with higher levels of constituents, or more biologically available forms, including heavy metals and other contaminants such as PCBs and dioxin/furans. Treatment methods that include ground disturbance have the potential to expose and/or mobilize contaminated sediments which could result in a potential increased risk to water quality. If ground disturbance is conducted in areas with high concentrations of metals or pollutants, there is the potential to degrade water quality and contribute to exposure of marsh organisms to some level of constituents. Project-induced remobilization of contaminated sediments would not likely occur from treatment methods that do not directly disturb sediments. However, imazapyr application is not preferred, because if imazapyr is applied in areas with relatively high levels of contaminants then there is an increased potential for synergistic effects of the chemicals. ~~Impacts related to remobilization of contaminated sediments~~ This impact will be reduced to less-than-significant ~~levels~~ by implementing specific mitigation measures and BMPs as recommended in Mitigation Measure WQ-4.

MITIGATION WQ-4: Assess Existing Contamination. For projects where ground disturbance methods (such as digging or excavation) or imazapyr application are considered, a preliminary assessment shall be performed to determine the potential for contamination in sediments prior to initiating treatment. The preliminary assessment shall include (1) review of existing site data and (2) evaluation of historical site use and/or proximity to possible contaminant sources. If the preliminary assessment finds a potential for historic sediment contamination, an appropriate sediment sampling and analysis guide shall be followed and implemented, or soil contamination shall be assumed to be present. If contaminants with a known potential for synergistic effects with imazapyr are present or assumed to be present at levels higher than background levels, that would result in synergistic effects ~~(but below levels that might trigger site cleanup)~~, an alternative treatment method (that shall not disturb sediment or apply imazapyr) will be implemented, such as repeated top-mowing ~~or herbicide application~~, or the specific project shall apply to the Regional Water Board for site-specific WDR. If contaminants are present or assumed to be present at levels higher than background levels (but below levels that might trigger site cleanup), and these contaminants raise concerns for potential impacts from ground disturbance but not from synergistic effects due to imazapyr application, treatment methods that shall not disturb sediment (e.g., top mowing or imazapyr application) shall be used, or the specific project shall apply to the Regional Water Board for site-specific WDR. If significant contamination that warrants site cleanup is identified, sampling information shall be provided to the U.S. EPA or other appropriate authority.

Response to Comment FWS-1

Comment noted.

Response to Comment SCC-1

It would take approximately two years before replanting would have a considerable aesthetic benefit and hence it isn't considered a feasible mitigation measure for visual impacts.

Section 4.6.3 of the PEIR has been modified as follows:

> *MITIGATION AV-2: Limit covering*. In any given area that is visible from a public vantage point, including roads, highways and other areas of relatively high public use, covering shall be limited to 0.5 acres.

Response to Comment SCC-2

The following significance criterion has been added to Section 4.8.9 of the PEIR. Addition of this criterion does not change the conclusions made regarding the project's potential environmental effects.

> 4. Have a substantial adverse effect on coastal wetlands as defined by the California Coastal Act.

Response to Comment SCC-3

(See Master Response 1)

Response to Comment SCC-4

(See Master Response 1)

Response to Comment SCC-5

Imazapyr may breakdown slower if applied during cloudy or foggy days. However, it is still expected to break down rapidly. Especially with the spatial and temporal limits for imazapyr application that have been added to the PEIR (see Master Response 1), it is not expected that fog or clouds would result in persistence of imazapyr or create conditions that would result in a significant environmental effect.

Response to Comment SCC-6

As described in the draft PEIR (for example, see page 21), surfactants are short lived in high-energy tidal environments such as those in the project area. As such, it is highly unlikely that the surfactants would accumulate in a manner that would pose a risk to pelicans or other species that can be affected by oils.

Response to Comment SCC-7

A buffer is not necessary to protect eelgrass. Mechanical methods can physically avoid eelgrass plants. Imazapyr application is very unlikely to result in high enough concentrations of this herbicide at the tidal elevations where eelgrass is located to injure or kill eelgrass. Imazapyr will be applied at very low tides directly to *Spartina* plants, such that overspray would occur to a small extent and with a low frequency. If overspray did occur in the vicinity of eelgrass, the concentration of imazapyr near eelgrass would be further reduced by dilution in tidal waters, as eelgrass grows at elevations that are frequently inundated and imazapyr is water soluble. Furthermore, imazapyr would be expected to break down rapidly at the elevations where eelgrass grows because imazapyr breaks down by photolysis, and sufficient light must be available at eelgrass sites to support the plant. Patten (2003) found that "Applications of imazapyr to native eelgrass (*Zostera marina* L.) and Japanese eelgrass covered by a thin film of tidal water had no effect." Hence, it is unlikely that imazapyr would remain in contact with eelgrass plants long enough at high enough concentrations to have any considerable effect.

Response to Comment SCC-8

Section 2.3.9 of the PEIR has been modified as follows:

> Flooding has not been tested as a primary treatment, but the method could be worth investigation at locations where conditions are suitable. If hydrology can be easily manipulated, as via a tidegate or by blocking a levee breach with an inflatable dam, it may be possible to drown the plants by flooding the site. Studies have shown that flooding *Spartina* plants for two months results in significant mortality of aboveground tissue, though belowground biomass may remain alive (Mateos Naranjo et al. 2007); flooding would likely have to be maintained for 3-4 months to be effective. *Spartina* does not typically occur in marshes or portions of marshes with insufficient drainage or prolonged inundation. This measure would be best applied in high density stands of *Spartina* where few other plants occur, as other plant species and animals could also be killed by the treatment. Additionally, at suitable locations, flooding may be useful as a means of inhibiting *Spartina* seedling emergence. In light of the experimental nature of this treatment and its limited applicability, flooding would initially be used experimentally on a small scale (<5 acres) and would not be used in areas greater than 20 acres. Flooding would not be prolonged for longer than four months, and flooded areas would be monitored weekly to ensure that hydrologic changes due to temporary flooding are not having unforeseen impacts in adjacent areas, such as through scouring of tidal channels. All impoundments will include a simple mechanism for releasing the impounded water if necessary to prevent any permanent changes to the tidal channels.

Section 4.12.19 of the PEIR has been modified as follows:

> **IMPACT WQ-9: Alteration of Drainage Patterns due to Placement of Temporary Dikes or Structures to Impound Water.** Water impoundments could potentially have a significant effect on drainage patterns and erosion processes. For example, impoundments could result in scouring of tidal channels. However, because flooding will be limited in spatial extent (<5 acres experimentally initially, and <20 ac generally) and duration (<4 months) and will be monitored weekly, and because impoundments will include a simple mechanism for releasing the impounded water if necessary to prevent any permanent changes to tidal channels or other features, this effect is temporary and less than significant.

The following reference has been added to Section 10 (Literature Cited) of the PEIR:

> Mateos-Naranjo, E., S. Redondo-Gómez, J. Silva, R. Santos, and M. E. Figueroa. 2007. Effect of Prolonged Flooding on the Invader *Spartina densiflora* Brong. J. Aquatic Plant Management 45:121-123.

Response to Comment SCC-9

It is expected that imazapyr will contact coastal waters. As described in Sections 4.11 and 4.12 of the PEIR, imazapyr is water soluble and not persistent in high energy tidal environments such as those found in the project area.

Response to Comment SCC-10

(See Master Response 1)

Response to Comment SCC-11

It is expected that imazapyr will contact coastal waters and no buffer between imazapyr treatment areas and coastal waters is proposed. As described in Sections 4.11 and 4.12 of the PEIR, imazapyr is water soluble and not persistent in high energy tidal environments such as those found in the project area.

Response to Comment SCC-12 and SCC-13

Section 4.12.19 of the PEIR has been modified as follows:

MITIGATION WQ-3: Minimize Fuel and Petroleum Spill Risks. Fueling operations or storage of petroleum products shall be maintained off-site, and a spill prevention and management plan shall be developed and implemented to contain and clean up spills. Transport vessels and vehicles, and other equipment (e.g., mowers) shall not be serviced or fueled in the field except under emergency conditions; hand-held gas-powered equipment shall be fueled in the field using precautions to minimize or avoid fuel spills within the marsh. For example, gas cans will be placed on an oil drip pan with a PIG® Oil-Only Mat Pad placed on top to prevent oil/gas contamination. Only vegetable oil-based hydraulic fluid will be used in heavy equipment and vehicles during *Spartina* control efforts. When feasible, biodiesel will be used instead of petroleum diesel in heavy equipment and vehicles during *Spartina* control efforts. Other, specific BMPs shall be specified as appropriate to comply with the Basin Plan and the other applicable Water Quality Certifications and/or NPDES requirements. This mitigation is intended to be carried out in conjunction with Mitigation HMM-2 in order to reduce potential impacts to less than significant level.

Response to Comment SCC-14

(See response to comment SCC-8)

Response to Comment SCC-15

Section 4.13.3 of the PEIR has been modified as follows:

MITIGATION LU-5: Do not treat Spartina during peak public use periods: Although public use is minimal in the salt marshes where *Spartina* primarily occurs, there is some use, particularly by waterfowl hunters. *Spartina* treatment will not occur in waterfowl hunting areas during periods of time when hunters are active. If other peak periods of public use are identified in *Spartina* infested areas then control efforts will also avoid these time periods.

Response to Comment SCC-16

See response to Comment SCC-1. Additionally, Section 4.61 of the PEIR has been modified as follows:

Future conditions will be affected by 2 types of effects from the Proposed Project, 1) short-term and temporary effects, and 2) long-term and permanent effects. All of the above County General Plan goals and policies will be supported by the Proposed Project. Additionally, the proposed project is consistent with the goals and policies described in the City of Arcata General Plan (City of Arcata 2008), City of Eureka General Plan (City of Eureka 1997), existing

County of Humboldt General Plan (County of Humboldt 2005), Humboldt Bay Management Plan (HBHRCD 2007) and the California Coastal Act. Long-term and permanent visual effects from the Proposed Project will be the conversion of vegetation from *Spartina* to other native plants, which will likely have a lower and sparser form, but with more diversity in colors and plant types. While *Spartina* can be bushier, native vegetation, such as pickleweed and saltgrass, has less brown, standing dead material during the growing season when most visitors are viewing the marsh. Casual observers may associate fuller vegetation with healthier and "prettier" coastal conditions. Therefore, the enjoyment of Humboldt County's beauty and abundant natural resources may be decreased for some observers, but increased for others who appreciate the diversity of the native plants.

Response to Comment SCC-17

See Response to Comment SCC-2, SCC-5, SCC-6, and SCC-7, and Master Response 1. Additionally, Section 4.8 of the PEIR has been modified as follows:

4.8.8 Coastal Act

Areas where *Spartina* control will occur are primarily within the California Coastal Commission's area of retained permitting jurisdiction and the project will require either a Coastal Development Permit or federal consistency determination under the Coastal Act. The Coastal Act contains policies to protect marine resources, coastal waters, estuaries, wetlands, water quality, and environmentally sensitive habitat areas.

Response to Comment SCC-18

See Response to Comment SCC-5, SCC-7, SCC-8, SCC-12, and SCC-13, and Master Response 1. Additionally, Section 4.12 has been modified as follows:

4.12.4 The Coastal Act

The Coastal Act requires water quality protection of certain areas, including areas where *Spartina* control efforts are being considered. The following sections of the Coastal Act are particularly relevant.

Section 30321 states "The biological productivity and the quality of coastal waters, streams, wetlands, estuaries, and lakes appropriate to maintain optimum populations of marine organisms and for the protection of human health shall be maintained and, where feasible, restored through, among other means, minimizing adverse effects of waste water discharges and entrainment, controlling runoff, preventing depletion of ground water supplies and substantial

interference with surface water flow, encouraging waste water reclamation, maintaining natural vegetation buffer areas that protect riparian habitats, and minimizing alteration of natural streams."

Section 30232 states "Protection against the spillage of crude oil, gas, petroleum prodcuts, or hazardous substances shall be provided in relation to any development or transportation of such materials. Effective containment and cleanup facilities and procedures shall be provided for accidental spills that do occur."

and

4.12.16 Other Relevant Local Plans
The City of Arcata General Plan (City of Arcata 2008) and City of Eureka General Plan (City of Eureka 1997) contain further goals and policies related to water quality. These goals and policies are consistent with those contained in the County's General Plan (County of Humboldt 2005) and the Project.

Response to Comment SCC-19

See Response to Comment SCC-15

Response to Comment ARC-1

Although the surfactants may float on the water surface, they are expected to rapidly disperse with the high tidal energy in the project area and not create a significant effect.

Regarding enforcement of wind restrictions and other mitigation measures, as is customary, the public agencies that implement the Humboldt Bay Regional *Spartina* Eradication Plan are entrusted with CEQA compliance.

See also Master Responses 1 and 2.

Section 2: Comments from Individuals and Responses

From:	Trisha Lee
To:	jgerwein@scc.ca.gov
Subject:	Asking Coastal Conservancy to Adopt Alternative one, Mechanical Methods only for Spartina Eradication
Date:	Tuesday, January 15, 2013 8:22:24 PM

It is imperative that you support Spartina eradication, but not the use of herbicide in Humboldt Bay and the Eel and Mad River estuaries. Please adopt **Alternative 1, Mechanical Methods Only,** for the Spartina Eradication Programmatic EIR!

The cities of Arcata and Eureka only allow herbicides and pesticides as a last resort. **The proposed plan should respect and comply with the cities pesticide policies, it should also apply those policies throughout the Bay.**

If this eradication herbicide is applied, the incoming tides could spread the herbicide far and wide, potentially exposing rare native plants, eelgrass, fish, and shellfish.The current plan does not propose any protections for the risk of exposure to people eating fish or shellfish harvested near spray sites, merely stating that such exposure poses minimal risks. These risks should not be taken when there are safe, effective alternatives.

TL - 1

Please adopt Alternative 1, Mechanical Methods Only, for the Spartina Eradication Programmatic EIR!

Thank you for your consideration of my attempts to protect our environment from severe harm, thus harming the people who depend on clean air, clean water, and clean environment in order to survive.

Best Regards,

Trisha Lotus

2425 C Street, Eureka, CA 95501

Eureka, CA

From: Bruce Campbell
To: jgerwein@scc.ca.gov
Subject: Comments on Draft PEIR for the Hum. Bay Reg"l Spartina Erad.n Plan
Date: Tuesday, January 15, 2013 11:52:37 PM

January 15th, 2013

Bruce Campbell
3520 Overland Ave. # A 149
Los Angeles, CA 90034

Joel Gerwein, Project Manager
California Coastal Conservancy
1330 Broadway, 13th floor
Oakland, CA 94612

Re: Comments on Draft PEIR for the Humboldt Bay Regional Spartina Eradication Plan

Dear Mr. Gerwein:

I strongly urge that you choose Alternative 1 which would allow a plethora of mechanical methods to be employed to control and eradicate the invasive plant from South America called spartina, but not toxic herbicides.

BC - 1

I disagree with the assertion in the document that the Preferred Alternative is "environmentally superior." I noticed in one of the backup documents that there was talk of spartina seeds blowing in the wind to expand its reach. Clearly, if there are complaints about spartina seeds, I bet that pesticide drift can travel at least as far as spartina seeds.

Even ground-spraying of Imazapyr has been noted to exceed the EPA's Level of Concern for non-target vegetation due to the combination of runoff and drift. Tides (including King Tides) can transport toxic herbicide residue and breakdown products to some sensitive species such as eelgrass, shellfish, and fish. Careful evaluate how much of the food chain (specify predator / prey relationships) of these estuaries will be impacted by the spraying of Imazapyr. Please prove how it would be only minimal risks to marine species, bird species, and to human consumers of fish and shellfish impacted by Imazapyr as well as its inert ingredients and breakdown products.

BC - 2

Seeing that the state-endangered Marbled Murrelet is known to use Humboldt and Arcata Bays and the nearby Pacific Ocean (as well as the Eel River Delta and further upstream on the Eel River), there must be careful evaluation in regards to how various methods would impact marbled murrelet feeding and social activity habitat, as well as its prey.

BC - 3

There is no info as to the 47% of the Imazapyr product which is "inert ingredients." In the case of the glyphosate broad-spectrum herbicide, the POEA inert ingredients in some formulations are more toxic than glyphosate itself. We are feeling our way in the dark when we have no clue what the inert ingredients are in Imazapyr.

BC - 4

Also, there is a lot of "desorption" with Imazapyr, plus over half the residue seems to sink to the (bay or estuary) bottom negatively impacting other species there. BC - 5

The PEIR does not provide sufficient information on various topics. One, about how many acres would be treated per year between the Mad River estuary and the Eel River Delta in this spartina eradication program? (I am being geographically inclusive here so of course Arcata and Humboldt Bays are in between these northern and southern points earlier mentioned). Two, about how many acres of such estimated total (in a given month, season, or year) would use Imazapyr, and about how many would use alternative methods for spartina control? BC - 6

The PEIR should have evaluated the success of various spartina eradication / control methods which have been used pretty successfully in the Humboldt Bay National Wildlife Refuge. BC - 7

There should have been site-specific evaluation of the eradication / control program in the HBMWR -- which could then be compared to what is proposed in the estuaries of Humboldt County. And, without knowledge of specific areas which are planned to be treated, how then can we determine the threat to rare native plants and other "collateral damage" from herbicide spraying? BC - 8

Lastly, I want to mention the growing resistance to herbicides that has been occurring lately including to a number of ALS herbicides. Why promote an aquatic formulation little used and studied in California whose chemical family relatives are having a rash of resistance / tolerance to those herbicides (with often get vegetation management folks concluding that they have to move to even more toxic herbicides)? BC - 9

Once again, please choose Alternative I and be more thorough in regards to what is in the pesticide formulation, how many acres will be treated per year and with what methods, and get site-specific so we can relate those areas to possible nearby rare plants and other sensitive species. Thank you very much. BC - 10

Sincerely yours,

Bruce Campbell

From:	beverly prosser
To:	jgerwein@scc.ca.gov
Subject:	eradication plan for invasive weeds in salt marshes in Ho. Bay area
Date:	Sunday, January 13, 2013 3:18:08 PM

Dear Coastal Conservancy,

Please select Alternative 1 regarding eradication of invasive weeds in Ho. Bay areas and Mad River and Eel River estuaries.

I want to thank you personally for all the support you have provided in the past for Manila CSD bay and beach areas - both for acquisition and beach grass eradication. Earlier the Coastal Conservancy provided funding for a study of the bay area in Manila Park, which resulted in the acquisition of almost 300 acres of bay property. Thus the District has a stake in eradication of invasive weeds in the bay area, since the District owns acreage out into the middle of Humboldt Bay. As a community member, I would sincerely like to see eradication of invasive weeds continue, however, again I support manual methods - certainly over herbicides. Alternative 1 would also give support for manual labor as provided by the California Conservation Corps or other DFG.programs.

BP - 1

Again, I thank you for your continued support for weed eradication in the Humboldt area.

Sincerely,

Beverly Prosser
1859 Park Street
Arcata (Manila), CA 95521
(707) 445-0964
binky95521@gmail.com

From: Craig Benson
To: Joel Gerwein; Adam Wagschal
Subject: FW: Action Alert! Say No to Herbicides in Humboldt Bay Salt Marshes!
Date: Friday, January 11, 2013 3:05:15 PM

FYI.

Craig

From: Humboldt Baykeeper [mailto:volunteer@humboldtbaykeeper.org]
Sent: Friday, January 11, 2013 2:22 PM
To: craig@nrsrcaa.org
Subject: Action Alert! Say No to Herbicides in Humboldt Bay Salt Marshes!

Action Alert! Say No to Herbicides in Humboldt Bay Salt Marshes!

The California Coastal Conservancy's draft plan to eradicate the invasive cordgrass (Spartina densiflora) would allow spraying the aquatic herbicide "imazapyr" on Humboldt Bay salt marshes, despite the fact that non-chemical methods like mowing and weedwhacking are highly effective. **Tell the Coastal Conservancy you support Spartina eradication, but not the use of herbicide in Humboldt Bay and the Eel and Mad River estuaries.** Ask them to adopt **Alternative 1, Mechanical Methods Only,** for the Spartina Eradication Programmatic EIR!

The cities of Arcata and Eureka only allow herbicides and pesticides as a last resort. **The proposed plan should respect and comply with the cities pesticide policies, it should also apply those policies throughout the Bay.** Heres why:

HBK2 - 1

The incoming tides could spread the herbicide far and wide, potentially exposing rare native plants, eelgrass, fish, and shellfish.The current plan does not propose any protections for the risk of exposure to people eating fish or shellfish harvested near spray sites, merely stating that such exposure poses minimal risks. These risks should not be taken when there are safe, effective alternatives.

Tell the Coastal Conservancy to adopt Alternative 1, Mechanical Methods Only, for the Spartina Eradication Programmatic EIR!

Comments are due Tuesday, January 15th.

Send comments by email or U.S. mail to:

Joel Gerwein, Project Manager California Coastal Conservancy

jgerwein@scc.ca.gov

1330 Broadway, 13th floor

Oakland, CA 94612

Your donation makes it possible for us to protect our environment, thank you!

Donate Now

From: Sara Griffin
To: jgerwein@scc.ca.gov
Subject: Herbicides for Humboldt Bay
Date: Friday, January 11, 2013 5:39:08 PM

I just learned that the Coastal Conservancy is thinking of using chemicals to eradicate cordgrass from the water ways here. These risks should not be taken when there are safe, effective alternatives that do not call for chemical, but mechanical methods to keep this grass down. Please consider adopting Alternative 1, Mechanical Methods Only, for the Spartina Eradication Programmatic EIR!

SG - 1

jgerwein@scc.ca.gov

Thank you for your time,
Sara Griffin
2388 Golf Course Rd.
Bayside, CA

From:	Bob Morris
To:	jgerwein@scc.ca.gov
Cc:	Jen Kalt
Subject:	Herbicides
Date:	Saturday, January 12, 2013 9:22:51 AM

To: Joel Gerwein, California Coastal Conservancy I support the attempted eradication of non-native invasive chordgrass in California's estuaries, but emphatically oppose the use of herbicides to accomplish it. I support Alternative 1, as mechanical methods appear to be affective. Thank you for this opportunity for input. Bob Morris, Vice-President of the Northcoast Environmental Center, Arcata, California

BM - 1

From:	Bob Morris
To:	jgerwein@scc.ca.gov
Cc:	Larry Glass; Ginny Rice
Subject:	Herbicides
Date:	Monday, January 14, 2013 10:31:45 AM

To: Joel Gerwein, California Coastal Conservancy I support the attempted eradication of non-native invasive chordgrass in California's estuaries, but emphatically oppose the use of herbicides to accomplish it. I support Alternative 1, as mechanical methods appear to be affective. Thank you for this opportunity for input. Bob Morris, Vice-President of Safe Alternatives for our Forest Environment (S.A.F.E.), Weaverville, California

BM2 - 1

From:	Meighan O"Brien
To:	jgerwein@scc.ca.gov
Subject:	Humboldt Bay and surrounding river marshes
Date:	Sunday, January 13, 2013 10:44:49 AM

Dear Mr. Gerwein,

I support Spartina eradication, but not the use of herbicide in Humboldt Bay and the Eel and Mad River estuaries. Please adopt **Alternative 1, Mechanical Methods Only,** for the Spartina Eradication Programmatic EIR! The cities of Arcata and Eureka only allow herbicides and pesticides as a last resort. **The proposed plan should respect and comply with the cities pesticide policies, it should also apply those policies throughout the Bay.** The incoming tides could spread the herbicide far and wide, potentially exposing rare native plants, eelgrass, fish, and shellfish.The current plan does not propose any protections for the risk of exposure to people eating fish or shellfish harvested near spray sites, merely stating that such exposure poses minimal risks. These risks should not be taken when there are safe, effective alternatives.

MO - 1

On a local note, neighbors and I have been collecting petitions here in the small burg of McKinleyville to stop the application of herbicides and pesticides to the fields here. These fields are farmed for alfalfa and utilize the excess water from the sewage treatment plant as irrigation. Not only would these pesticides and herbicides run off into the adjacent Mad River but would also contaminate our dogs, and possibly our children who might get in under the flimsy fence.

In one day, talking to folks who mostly are not involved in politics or are conservative if they do, I collected 59 signatures. People do not want their local waters and fields contaminated with cancer causing pesticides and herbicides.We all realize the cumulative impacts from years of spraying, dumping, and applying dangerous pesticides and do not wish to add to that volume. The Community Services District Board is now proposing that we adopt a similar policy to those of Arcata and Eureka which would regulate the use of any of these chemicals on our lands.

I realize we are north of your proposed Spartina eradication area, but I am sending this to you as argument against any further introduction of cancer causing chemicals into our waters.

Please!The Coastal Conservancy should adopt Alternative 1, Mechanical Methods Only, for the Spartina Eradication Programmatic EIR!

Many thanks for your consideration.

Sincerely,

Meighan O'Brien
1862 Bird Avenue
McKinleyville, CA 95519
707-839-2876

From: Monica Durant
To: jgerwein@scc.ca.gov
Subject: Humboldt Bay safety
Date: Friday, January 11, 2013 2:50:26 PM

Dear Mr. Gerwein,

Please don't allow the use of chemical herbicides in Humboldt Bay. I understand they may be needed as a last reort, but it's my understnading that physical removal is highly effective. I encourage you to work towards adopting Alternative 1, Mechanical Methods Only, for the Spartina Eradication Programmatic EIR instead.

MD - 1

Thank you for listening,
Monica

From: Michael Evenson
To: jgerwein@scc.ca.gov
Subject: Humboldt Bay Spartina grass
Date: Friday, January 11, 2013 6:56:38 PM

Please do not permit the use of herbicides on invasive species around Humboldt Bay! There are other methods of eradication with far fewer impacts. Herbicide use will impact aquatic resources that are under your public trust responsibilities.

ME - 1

Michael Evenson

Michael Evenson, owner
OldGrowthTimbers.com
Samoa and V Streets
Arcata, CA
(707) 834-5340 mobile

From: Eugene Perricelli
To: jgerwein@scc.ca.gov
Subject: Humboldt Bay Spartina Removal
Date: Friday, January 11, 2013 4:29:21 PM

Please do NOT allow the use of herbicides in the effort to eradicate Spartina in the Humboldt Bay Area. Mechanical methods work and are much more environmentally sound.

CP-1

Thank you for your consideration,
Claire Perricelli
Eureka

From: erowe
To: jgerwein@scc.ca.gov
Subject: Humboldt Bay
Date: Friday, January 11, 2013 10:05:07 PM

Dear Mr. Gerwin
I support Spartina eradication, but not the use of herbicide in Humboldt Bay and the Eel and Mad River estuaries. Please adopt Alternative 1, Mechanical Methods Only, for the Spartina Eradication Programmatic EIR!
The cities of Arcata and Eureka only allow herbicides and pesticides as a last resort. The proposed plan should respect and comply with the cities pesticide policies, it should also apply those policies throughout the Bay. Heres why:
The incoming tides could spread the herbicide far and wide, potentially exposing rare native plants, eelgrass, fish, and shellfish.The current plan does not propose any protections for the risk of exposure to people eating fish or shellfish harvested near spray sites, merely stating that such exposure poses minimal risks. These risks should not be taken when there are safe, effective alternatives.
Please adopt Alternative 1, Mechanical Methods Only, for the Spartina Eradication Programmatic EIR!
Thank you,
Erin Rowe

ER - 1

From: jessica doremus
To: jgerwein@scc.ca.gov
Subject: Mechanical Methods Only
Date: Saturday, January 12, 2013 11:56:15 PM

Dear Project Manager,
Please adopt Alternative 1, Mechanical Methods Only, for the Spartina Eradication Programmatic EIR!
Although I understand the need for the removal of the invasive cordgrass (Spartina densiflora), I DO NOT support the use of herbicides on Humboldt Bay nor in the Eel and Mad River estuaries.
There are mechanical methods for removal that are safe and effective for corgrass removal. Arcata and Eureka both have established policies which only allow pesticide and herbicide use as last resort. These policies were created by the people of Humboldt to protect the native plants, fish, people, and other bay life from pesticide and herbicide exposure. Please respect those policies and DO NOT choose to take such an unnecessary risk.
Sincerely,
Jessica Doremus (RN,kayaker,Watershed Steward)

JD - 1

From: mike black
To: jgerwein@scc.ca.gov
Subject: NO (MORE) HERBICIDES IN HUMBOLDT BAY
Date: Sunday, January 13, 2013 10:06:40 AM

Hello,

I am writing to say that I want the California Coastal Conservancy to adopt Alternative 1, Mechanical Methods Only, for the Spartina Eradication Programmatic EIR. I eradicated noxious weeds and invasive plants for a living while working with the USFS. Humboldt Bay is a sensitive and delicate ecosystem that already suffers from human land use activities, past and present. Given that mechanical methods are an effective treatment for cordgrass it should not even be an option to use herbicides.

MB - 1

I would be a lot more stoked to see a scheduled monthly day where the public and agencies could get involved with eradication.

Thank you for your time

Mike

From: MAUREEN ROCHE
To: jgerwein@scc.ca.gov
Subject: No to Poisoning Humbolt Bay , Eel River nor Mad River Estuary
Date: Monday, January 14, 2013 10:47:51 AM

Please use alternative 1: mechanical removal, as poison is cumulative with unknown ,untoward interactions with toxins and drugs and synthetic fertilzers and Dioxin and a myriad of not yet found, nor looked for chemicals that are not compatible with life.
We are fortunate especially this winter for a return of hopeful numbers of salmon, not to be thwarted again with hazards unnecessary and ineffective. Precedent has shown poison favors the invasive. This is a radical misinformed approach driven by industry without responsibility , as Coastal Commission has, to maintain and improve viability and healthy ecosystem functions.

MR - 1

Thank You for Your Attention,
Maureen Roche

From: Leslie Kemp
To: jgerwein@scc.ca.gov
Subject: RE: Action Alert! Say No to Herbicides in Humboldt Bay Salt Marshes!
Date: Saturday, January 12, 2013 5:39:08 PM

Coastal Conservancy

I say No to Herbicides in Humboldt Bay Salt Marshes!
I support Spartina eradication, but not the use of herbicide in Humboldt Bay and the Eel and Mad River estuaries.

please adopt **Alternative 1, Mechanical Methods Only,** for the Spartina Eradication Programmatic EIR! The cities of Arcata and Eureka only allow herbicides and pesticides as a last resort. **The proposed plan should respect and comply with the cities pesticide policies, it should also apply those policies throughout the Bay.**

LK - 1

Heres why:
The incoming tides could spread the herbicide far and wide, potentially exposing rare native plants, eelgrass, fish, and shellfish.The current plan does not propose any protections for the risk of exposure to people eating fish or shellfish harvested near spray sites, merely stating that such exposure poses minimal risks. These risks should not be taken when there are safe, effective alternatives.

Leslie

From: Dian Bacigalupi
To: jgerwein@scc.ca.gov
Subject: Salt Marsh treatments- Humboldt Bay
Date: Tuesday, January 15, 2013 1:08:31 PM

Please utilize Alternative 1: Mechanical Methods Only for the Humboldt Bay and Salt Marsh treatment. Our bay is impaired by previous activities in our area- as are our bodies from constant exposure to the multitude of synthetic toxins forced on us by the chemical industry and agencies that support them.

DB - 1

Community efforts have brought many improvements towards a healthy environment in Humboldt, and aquaculture is a promise for the health of our economic future.

Give Mechanical Treatments a reasonable chance. The jobs created will be much appreciated as will the wisdom of your choices. Think of the future of your own children. They will remember and thank you.

Dian Bacigalupi
Humboldt

From: Tom Richardson
To: jgerwein@scc.ca.gov
Subject: Spartina Eradication Program Humboldt Bay
Date: Monday, January 14, 2013 5:23:01 PM

Dear Joel,

I would like to comment on the California Coastal Conservancy's draft plan to eradicate the invasive cordgrass (Spartina densiflora) on Humboldt Bay salt marshes,and the Eel River and Mad River estuaries.

I would like to request that you Adopt Alternative 1, Mechanical Methods Only, for the Spartina Eradication Program, instead of spraying the herbicide "imazapyr". The cities of Arcata and Eureka only allow herbicides and pesticides a last resort. The proposed plan should respect and comply with the cities pesticide policies.

TR - 1

I am concerned about the risk that incoming tides could spread the non specific herbicide over large areas potentially exposing rare native plants, eelgrass, fish, shellfish and people who use the bay for commerce and recreation . These risks should not be taken when there are safe, effective alternatives such as manual or mechanical methods

I would also like to thank you and the California Coastal Conservancy for all your efforts to protect our beautiful coast.

Thank you,

Tom Richardson
1 Marina Way
Eureka California
95501

From:	Kerry McNamee
To:	jgerwein@scc.ca.gov
Subject:	Spartina Eradication Programmatic EIR Comment
Date:	Saturday, January 12, 2013 11:31:50 PM

Hello Joel and the Coastal Conservancy,

Initially upon learning about the plan to eradicate invasive spartina in Humboldt Bay and the Mad and Eel River estuaries, I was pleased. Until reading that the Coastal Conservancy plans to use herbicides. From what I understand, mowing and weedwhacking are highly effective at eradicating spartina cordgrass, and I-a tax paying citizen in the area-would rather fund a plan that encompasses mechanical eradication of invasive spartina, not one using chemical means. The cities of Arcata and Eureka only allow herbicides to be used as a last resort, the Coastal Conservancy should respect the local governments policies. Herbicides contain harmful chemicals, and when sprayed on salt marshes, will undoubtedly bioaccumulate in marine species and humans, as well as contaminate ground water. PLEASE pursue mechanical means of eradicating spartina only and adopt Alternative 1.

KM - 1

Thank you.
Kerry McNamee

--
"Change your thoughts and you can change your world"- N.V. Peale

From:	Rita Carlson
To:	jgerwein@scc.ca.gov
Subject:	Spartina Eradication Programmatic EIR
Date:	Sunday, January 13, 2013 12:46:43 PM

Dear Mr. Gerwein:

It is my understanding that the California Coastal Conservancy's draft plan to eradicate the invasive cordgrass (Spartina densiflora) would allow spraying the aquatic herbicide "imazapyr" on Humboldt Bay salt marshes, despite the fact that non-chemical methods like mowing and weedwhacking are highly effective.

I support Spartina eradication, but not the use of herbicide in Humboldt Bay and the Eel and Mad River estuaries. I urge you to adopt Alternative 1, Mechanical Methods Only, for the Spartina Eradication Programmatic EIR!

The cities of Arcata and Eureka only allow herbicides and pesticides as a last resort.

RC - 1

The proposed plan should respect and comply with the cities pesticide policies, it should also apply those policies throughout the Bay. Heres why:

The incoming tides could spread the herbicide far and wide, potentially exposing rare native plants, eelgrass, fish, and shellfish. The current plan does not propose any protections for the risk of exposure to people eating fish or shellfish harvested near spray sites, merely stating that such exposure poses minimal risks. These risks should not be taken when there are safe, effective alternatives.

I strongly urge the Coastal Conservancy to adopt Alternative 1, Mechanical Methods Only, for the Spartina Eradication Programmatic EIR!

Sincerely,

Rita Carlson

POB 3753, Eureka, CA 95502-3753

(707) 445-8744

From:	Larry Glass
To:	jgerwein@scc.ca.gov
Subject:	Spartina Eradication Programmatic EIR
Date:	Monday, January 14, 2013 11:35:10 AM

Joel Gerwein

Project Manager

California Coastal Conservancy

Mr Gerwein,

Please adopt Alternative 1, Mechanical Methods Only, for the Spartina Eradication Programmatic EIR. There is wide spread opposition to the use of poison in/or near water in Humboldt County. Humboldt Bay has abundant wildlife both in and near the bay. Wildlife in all of it's forms will be threaten by the use of poison Herbicides. Herbicides that will have to be used indefinitely to even have chance of long term success. I say chance of success, but the the track record is very poor. Once again Please adopt Alternative 1, Mechanical Methods Only.

LG - 1

Larry Glass

President of the Board of Directors

Northcoast Environmental Center

Arcata, California

larryglass71@gmail.com

707-845-7136

From: tim haywood
To: jgerwein@scc.ca.gov
Subject: Spartina Eradication
Date: Friday, January 11, 2013 10:10:07 PM

I'm concerned about the use of any chemical or pesticide in Humboldt Bay and other local areas to aid in the eradication of Spartina. Please adopt Alternative 1, Mechanical Methods Only, for the Spartina Eradication Programmatic EIR!

TH - 1

Tim Haywood

From:	Ken Miller
To:	jgerwein@scc.ca.gov
Subject:	Spartina PEIR
Date:	Saturday, January 12, 2013 3:16:59 PM

Dear Mr. Gerwein,

I support Spartina eradication, but not the use of herbicide in Humboldt Bay and the Eel and Mad River estuaries. Please adopt **Alternative 1, Mechanical Methods Only,** for the Spartina Eradication Programmatic EIR!

The cities of Arcata and Eureka only allow herbicides and pesticides as a last resort. **The proposed plan should respect and comply with the cities pesticide policies, it should also apply those policies throughout the Bay.**

KM2 - 1

The incoming tides could spread the herbicide far and wide, potentially exposing rare native plants, eelgrass, fish, and shellfish.The current plan does not propose any protections for the risk of exposure to people eating fish or shellfish harvested near spray sites, merely stating that such exposure poses minimal risks. These risks should not be taken when there are safe, effective alternatives.

The Coastal Conservancy should adopt Alternative 1, Mechanical Methods Only, for the Spartina Eradication Programmatic EIR!

Thank you,

Ken Miller, MD
1658 Ocean Drive
McK, CA 95519
707-8397444

From: Douglas Parkinson
To: jgerwein@scc.ca.gov
Subject: Spartina Spraying
Date: Friday, January 11, 2013 4:47:35 PM

My name is Douglas Parkinson. I currently work in Arcata Ca and employed (sometimes and occasionally get paid what I'm worth). I work as Biological Consultant, Douglas Parkinson and Associates.

I would support use of herbicides for ***Spartina*** control on Humboldt Bay wetlands. Mechanical methods are labor intensive and admirable. However,t he spread and proliferation of invasive plant species requires immediate attention use of the most effective tools necessary. Once an invasive plant or animal has established dominance over a native population the return of a native population is nearly impossible to gain dominance.

DP - 1

My personal opinion is that we do not have the time to experiment with unproven slower methodologies considering the risks of losing a native population forever.

Thank You

Doug Parkinson
890 L Street
Arcata, CA 95521

Response to Comment TL-1

Comment noted. See Master Response 2.

Response to BC-1

Comment noted. It is not clear how the relative distance of pesticide drift and seed dispersal relates to the project's environmental effects. The PEIR discusses potential pesticide drift with wind, and incorporates mitigation measures to protect sensitive receptors (for example, see Section 4.7 and Impact AQ-3).

Response to BC-2

See Master Response 2.

Response to BC-3

With the mitigation measures described in the PEIR, the project is not expected to affect marbled murrelets or their prey.

Response to BC-4

As described in Section 4.11.4 of the draft PEIR, most existing toxicity studies on imazapyr were conducted with the technical grade product, which includes the "ingredients" referenced by the commenter.

Response to BC-5

The commenter does not provide any references or evidence for the statement. Based on our review of information, this is not the case.

Response to BC-6

The control program takes an adaptive management approach in which selection of control methods will be ongoing, based on the best available information at the time. Also, control rates cannot be predicted for each water body because this is dependent on a number of items including funding and regulatory approvals. See Master Response 1 regarding maximum application rates of imazapyr.

Response to BC-7

Spartina control efforts are described and considered in the Humboldt Bay Regional *Spartina* Eradication Plan, which is incorporated by reference into the draft PEIR.

Response to BC-8

The PEIR is by definition programmatic and hence does not include site specific evaluations. As described in the PEIR and Humboldt Bay Regional *Spartina* Eradication Plan, there will be site specific evaluations prior to *Spartina* control.

Response to BC-9

Each control method has some potential for environmental effects. The State Coastal Conservancy maintains that it is environmentally preferable to have all the methods available for use.

Response to BC-10

Comment noted.

Response to BP-1

Comment noted.

Response to HBK2-1

Comment noted. See Master Responses 1 and 2.

Response to SG-1

Comment noted.

Response to Comment BM-1

Comment noted.

Response to Comment BM2-1

Comment noted.

Response to Comment MO-1

Comment noted. See Master Response 2.

Response to Comment MD-1

Comment noted.

Response to Comment ME-1

Comment noted.

Response to Comment CP-1

Comment noted.

Response to Comment ER-1

Comment noted. See Master Response 2.

Response to Comment JD-1

Comment noted. See Master Response 2.

Response to Comment MB-1

Comment noted. See Master Response 1.

Response to Comment MR-1

Comment noted. See Master Response 1.

Response to Comment LK-1

Comment noted. See Master Response 2.

Response to Comment DB-1

Comment noted.

Section 4.13.3 of the PEIR has been modified as follows:

MITIGATION LU-3. Mechanical Methods near Agriculture. If crops (including aquaculture crops such as oysters and clams) are growing in the vicinity of spraying, such that these crops would be more difficult to sell even if herbicides are undetectable, mechanical methods of treatment shall be selected.

Response to Comment TR-1

Comment noted. See Master Response 2.

Response to Comment KM-1

Comment noted. See Master Responses 1 and 2.

Response to Comment RC-1

Comment noted. See Master Responses 1 and 2.

Response to Comment LG-1

Comment noted. See Master Response 1.

Response to Comment TH-1

Comment noted.

Response to Comment KM2-1

Comment noted. See Master Responses 1 and 2.

Response to Comment DP-1

Comment noted.

Section 3: Master Responses

Master Response 1

This Master Response is pertinent to comments ARC-1, BC-6, HBK2, HBK-4, HBK2-1, KM-1, KM2-1, LG-1, MB-1, MR-1, RC-1, SCC-3, SCC-4, SCC-5, SCC-10, SCC-17, and SCC-18.

As a point of clarification, there is no municipal ordinance in the City of Eureka specifying that pesticides be used only as a last resort. The City of Eureka utilizes an Integrated Pest Management approach to maintain its parks, natural areas, and other spaces. This plan allows for the use of pesticides when they are determined to be the most appropriate method of pest control, considering environmental impact, effectiveness, feasibility, and other factors.

Comments were received generally requesting that (1) there should be a maximum area that can be treated annually with imazapyr in the Eel River estuary, Humboldt Bay and the Mad River estuary, (2) there should be a maximum treatment area allowed per year, and (3) herbicides should only be used as a "last resort" for *Spartina* treatment. In recognition of these requests, the following has been added to Section 2.4 of the PEIR:

> Due to requests by the public, mechanical methods will be preferred over the use of imazapyr. To select imazapyr application as a treatment method at a specific site, the Regional Coordinator must find that:
>
> - Compared to mechanical methods, imazapyr substantially reduces treatment costs, and
> - Compared to mechanical methods, imazapyr has a greater likelihood of successfully controlling Spartina.
>
> Additionally, the area of annual treatment with imazapyr will be limited as follows:
>
> - Mad River Estuary: 7 acres (all of the mapped *Spartina*)
> - Humboldt Bay: 200 acres (approximately 1/5 of the mapped *Spartina*)
> - Eel River Estuary: 200 acres (approximately 1/3 of the mapped *Spartina*)
>
> Additionally, no site shall be treated with imazapyr more than three times during any five year period.

Master Response 2

This Master Response is pertinent to comments ARC-1, BC-2, ER-1, HBK-7, HBK2-1, JD-1, KM-1, KM2-1, LK-1, MO-1, TL-1, TR-1, and RC-1.

Comments were received generally stating that tides could spread imazapyr "far and wide" and that the PEIR does not propose any protections to people eating fish or shellfish. The following is a response to these comments:

As described in the draft PEIR, research has shown that imazapyr and surfactants are not likely to spread "far and wide". This is because imazapyr is water soluble and the surfactants are quickly dispersed in areas with strong tidal action, such as those found in the project area. The concentrations of imazapyr and surfactants in water adjacent to treatment areas rapidly drops to orders of magnitude below those concentrations that could result in injury or mortality to aquatic invertebrates and larger animals. The concentrations of imazapyr and surfactants at greater distances from application areas will be orders of magnitude lower due to dilution. Patten (2003) found that "Applications of imazapyr to native eelgrass (*Zostera marina* L.) and Japanese eelgrass covered by a thin film of tidal water had no effect." This result indicates that imazapyr applied in a tidal setting will not impact non-target plants except through direct overspray. This is consistent with the USEPAs conclusion that imazapyr has no effect on submerged aquatic vegetation (USEPA 2006). The USEPA's review of potential impacts from imazapyr in their reregistration review (ibid.) also supports this conclusion. While the USEPA review found that the herbicide could impact non-target aquatic and terrestrial plants if applied improperly, it found that following application requirements and rates would prevent such impacts. The USEPA found that drift impacts to non-target plants could occur if imazapyr were applied at maximum rates directly to water. However, this project does not propose to apply imazapyr directly to water, and drift impacts would not occur given the application methods proposed for this project. As described in the PEIR, it is unlikely that imazapyr or the surfactants will have any effect on animals, including humans. This is primarily because imazapyr is highly soluble in water, has low solubility in lipids, preventing it from bioaccumulating, and has low toxicity to animals, as it acts on a metabolic pathway which is only present in plants.

Section 4: References

Boyd, R.S., J.D. Freeman, J.H. Miller, and M.B. Edwards. 1995. Forest herbicide influences on floristic diversity seven years after broadcast pine release treatments in central Georgia, USA. New Forests 10:17-37.

Homyack, J.A. and C.A. Haas. 2009. Long-term effects of experimental forest harvesting on abundance and reproductive demography of terrestrial salamanders. Biological Conservation 142:110-121.

Patten, K. 2003. Persistence and non-target impact of imazapyr associated with smooth cordgrass control in an estuary. Journal of Aquatic Plant Management 41:1-6.

[USEPA] U.S. Environmental Protection Agency. 2006. Reregistration Eligibility Decision for Imazapyr. EPA 738-R-06-007.

Section 5: Mitigation Monitoring and Reporting Plan

Mitigation	Implementing Responsibility	Monitoring Responsibility	Timing
MITIGATION AV-1: Post Educational Signs. Educational signs shall be posted in areas where public use is high. The signs will explain Spartina's ecological impacts and describe the project. Increased public understanding of the project will improve the public's reaction to the temporary adverse change to the scenic marsh vista.	Coordinating Entity Project Manager	Coordinating Entity Project Manager	Beginning of first treatment season and each treatment season thereafter
MITIGATION AV-2: Limit covering. In any given area that is visible from a public vantage point, including roads, highways and other areas of relatively high public use, covering shall be limited to 0.5 acres.	Coordinating Entity Project Manager	Coordinating Entity Project Manager	During control
MITIGATION AQ-1: Dust Control. Apply dust control measures where treatment methods may produce visible dust clouds and where sensitive receptors (i.e., houses, schools, hospitals) are located within 500 ft of the treatment site. The following dust control measures shall be included: • Suspend activities when winds are too great to prevent visible dust clouds from affecting sensitive receptors; and • Limit traffic speeds on any dirt access roads to 15 mi per hour.	Spartina control contractor	Coordinating Entity Project Manager	During control
MITIGATION AQ-2: Smoke and Ash Emissions. The Management Area is within NCUAQMD Smoke Management Zones 1 and 2. Therefore, for prescribed burns, notification of and coordination with NCUAQMD and a local fire agency shall happen well in advance, prior to initiating the burn. Depending upon the quantity of material to be burned, the District APCO may request that a burn authorization number be obtained prior to ignition. On a project specific basis, a burn permit may be required with NCUAQMD to address potential issues with smoke and as a component of a smoke management plan, if deemed necessary. Additional notification to the local fire agency and/or department may also be required as deemed appropriate by the APCO. The following shall be conducted as a part of this mitigation measure: • Initiate consultation with the District APCO by calling (707) 443-3093 (or the current phone number) to determine if the following would be required for the site specific project: o Burn authorization number,	Coordinating Entity Project Manager	Coordinating Entity Project Manager	At least one month before initiating burns

Mitigation	Implementing Responsibility	Monitoring Responsibility	Timing
o Burn permit, and/or o Smoke management plan, as well as o Consultation with additional agencies such as the local fire agency and/or department. • If the treatment is occurring within the jurisdiction of a local fire agency and/or department, initiate consultation well in advance, prior to the initiating the burn.			
MITIGATION BIO-1: Minimize Effects of Mechanical Spartina Removal Methods to Special Status Fish Species. On a project specific basis, a habitat analysis shall be done to determine if special status fish species have the potential to occur. If they could occur, then surveys may be done to establish that these species are absent, using protocols approved by USFWS or NMFS. If such surveys are not conducted, then the species will be assumed present. If special status fish species are present, then *Spartina* control methods will be selected that minimize potential impacts. To minimize erosion effects, control methods that are most likely to cause erosion (i.e., grinding, tilling, disking and digging/excavating) will not occur within 15 ft of any aquatic habitat containing special status fish species, but this distance could be increased depending on site specific conditions, such as soil stability and bank slopes. Additionally, amphibious vehicles will not contact the channel substrate where special status fish species are present and the vehicles will be operated in such a manner that they avoid causing erosion into the channels. Furthermore, no flooding will be conducted in areas where special status fish species are present. Treatments that do not involve ground disturbance, such as top mowing, crushing, chemical treatment and covering will be the only methods used in close proximity (e.g., within 15 ft) to special status fish species. This mitigation measure is intended to avoid take as defined by the ESA and California ESA.	Coordinating Entity Project Manager and Spartina control contractor	Coordinating Entity Project Manager	Habitat analysis to be conducted at least one month before treatment

Mitigation	Implementing Responsibility	Monitoring Responsibility	Timing
MITIGATION BIO-2: Minimize Noise Effects. Breeding special status birds could be present based on habitat and time of year. The breeding season is generally October through mid-August. On a project specific basis, a habitat analysis shall be done to determine if special status bird species have the potential to occur. If the habitat would support special status birds, and if eradication is planned to occur when these birds may be breeding, then surveys will be done to establish that these species are absent, using protocols approved by USFWS. If such surveys are not conducted, then the species will be assumed present. Response of birds to noise varies by species as well as site specific factors including ambient noise levels, topography and vegetation. A limit of 60 dB reaching breeding songbirds has recently been advocated for the by the California Department of Fish and Wildlife (see ICF Jones and Stokes 2009). For the purpose of this PEIR, if breeding birds are known or assumed present within close proximity to *Spartina* control activities than actions will be taken to ensure that ≤60 dB reaches the breeding area. Actions may include the use of sound measuring devices to determine the range of noise production and limit *Spartina* control methods accordingly (i.e., use quieter methods near breeding special-status birds).	Coordinating Entity Project Manager and Spartina control contractor	Coordinating Entity Project Manager	Habitat analysis to be conducted at least 1 month before treatment. Breeding bird survey to be conducted no more than one week prior to treatment. Delineation of exclusion zones prior to treatment.
MITIGATION BIO-3: Avoid Northern Harrier and Short-Eared Owl Nests. The breeding season is March-August for northern harriers (Loughman and McLandress 1994) and March-July for short-eared owls (Gill 1977). If Spartina control activities are planned to occur during these periods (i.e., between March-August) then a qualified biologist will assess whether there is potential nesting habitat for northern harrier or short-eared owls. If there is potential habitat, it will be avoided or a qualified biologist will survey the potential habitat immediately prior to Spartina control work and if nests are found then a minimum 300 ft buffer zone will be delineated. The buffer zone will be avoided by Spartina control workers and equipment.	Coordinating Entity Project Manager and Spartina control contractor	Coordinating Entity Project Manager	Habitat analysis to be conducted at least 1 month before treatment. Breeding bird survey to be conducted no more than one week prior to treatment. Delineation of exclusion zones prior to treatment.
MITIGATION BIO-4: Minimize Impacts to Special Status Plant Species. On a site specific basis, a habitat analysis shall be done to determine if special status plant species have the potential to occur. If they could occur, then surveys may be done to establish that these species are absent, using protocols approved by CDFW. If such surveys are not conducted, then the species will be assumed present. If special status plant species are present, then *Spartina* control methods will be selected that avoid or minimize	Coordinating Entity Project Manager and Spartina control contractor	Coordinating Entity Project Manager	Surveys for annuals in the spring immediately prior to treatment. For perennials, surveys may occur in the prior year. Delineation of exclusion areas and worker training prior to treatment.

Mitigation	Implementing Responsibility	Monitoring Responsibility	Timing
potential impacts. Staked locations of special status plant populations or special status plant habitat shall be recorded, and field crews on foot or in vehicles shall be instructed to avoid and protect special status plant populations or plant habitat. Impact to the endangered dune plants beach layia and Humboldt Bay wallflower will be avoided by selecting access routes that do not contain these plants. For Humboldt Bay owl's clover and Point Reyes bird's beak, avoidance is determined not to be necessary because temporary effects during *Spartina* control are mitigated by the explosive increase in population that has been demonstrated after *Spartina* control (Pickart 2012). For other annual special status plants such as Western sand spurrey, avoidance shall occur by using only treatment methods that are highly selective; for example heavy equipment will not be operated where these plants or their habitat occur. For perennial plants such as Lyngbye's sedge, a qualified botanist shall stake out locations of special status plants and provide training to control crews to ensure that they minimize impacts to these plants. If special status plant populations or habitat occur near the high tide line, wrack and large deposits of mown *Spartina* shall be removed during the growing season. Special status plant populations shall be covered with fabric adjacent to areas sprayed with herbicide, or spray-drift barriers made of plastic or geo textile (aprons or tall silt fences) shall be installed. If accidental exposure to spray drift occurs, affected plants shall be thoroughly washed with silt-clay suspensions. To avoid trampling of special status plant species, in areas where frequent access will occur, paths shall be marked and used that avoid special status plant species to the maximum extent possible.			
MITIGATION BIO-5: Avoid Impacts to Eelgrass. Workers removing *Spartina* in areas with the potential for eelgrass shall be trained to recognize eelgrass and the mudflats that are habitat for eelgrass. Training shall be conducted by a qualified biologist. Only methods that avoid physical disturbance to eelgrass plants shall be used in close proximity to eelgrass, such as top mowing and excavation. With this mitigation measure, there will be no impact to eelgrass.	Coordinating Entity Project Manager and Spartina control contractor	Coordinating Entity Project Manager	Training prior to treatment. Exclusion during treatment.
MITIGATION BIO-6: Reduce Noise near Marine Mammals. If marine mammals are present within 200 ft of *Spartina* control operations, then methods which cause relatively high levels of noise (i.e., brushcutters, the Marsh Master and airboats) shall not be used. Other methods which do not generate a relatively high level of noise can be used.	Spartina control contractor	Coordinating Entity Project Manager	During treatment

Mitigation	Implementing Responsibility	Monitoring Responsibility	Timing
MITIGATION CR-1: Worker Awareness. Workers shall be made aware of the potential of uncovering artifacts or human remains, and instructed to cease work should any artifacts or human remains be found, and to contact the California Native American Heritage Commission (CNAHC), National Crime Information Center and/or County Coroner as appropriate. When treatment is allowed to begin again, areas identified as potentially having artifacts will be treated with methods that do not disturb the soil, such as top mowing, crushing and chemical treatment.	Coordinating Entity Project Manager and Spartina control contractor	Coordinating Entity Project Manager	Training prior to treatment. Response to artifacts or remains during treatment
MITIGATION CR-2: Site Specific Planning for Artifacts. Site specific planning will include a consultation with the Wiyot Tribe to determine the likelihood that artifacts are present. If there are indications that artifacts are likely to be found, soil disturbing methods shall be avoided.	Coordinating Entity Project Manager	Coordinating Entity Project Manager	Planning at least one month prior to treatment
MITIGATION CR-3: Site Specific Planning for Human Remains. If, during site specific planning, indications are that human remains are likely to be found (e.g., based on literature or communications with representatives from a Tribe), soil disturbing methods shall not be used until the remains are located and properly removed. If the coroner determines that the remains may be Native American, the coroner will contact CNAHC. CNAHC staff will notify the most likely descendants of the deceased. The descendants may, with permission of the land owner or representative, "inspect the site of the discovery of the Native American remains and may recommend to the owner or the person responsible for the excavation work means for treating or disposing, with appropriate dignity, the human remains and any associated grave goods" (Public Resources Code Section 5097.98). The descendants must make their recommendations within 48 h of being contacted by CNAHC. The land owner will insure that the area within the immediate vicinity of the remains is not further disturbed or damaged until the land owner and the most likely descendants have "discussed and conferred" reasonable options.	Coordinating Entity Project Manager	Coordinating Entity Project Manager	Planning at least one month prior to treatment
MITIGATION GS-1/WQ-5: Erosion Control. *Spartina* control methods which directly impact the soil (i.e., grinding, tilling, disking, digging and excavation) shall not be conducted on salt marsh areas that are within 15 ft of a salt marsh edge that is directly exposed to wave action. Other control methods can be used in these areas. This mitigation measure only applies to salt marsh edges along Humboldt Bay proper where wave action is relatively	Coordinating Entity Project Manager and Spartina control contractor	Coordinating Entity Project Manager	During treatment

Mitigation	Implementing Responsibility	Monitoring Responsibility	Timing
high, not attached sloughs/channels nor the Eel River or Mad River estuaries. Future research may reveal that control methods that directly impact the soil do not result in a significant level of erosion and that this mitigation is not necessary.			
MITIGATION HHM-1: Worker Injury from Accidents Associated with Manual and Mechanical Non-native Spartina Treatment. A health and safety plan shall be developed to identify and educate workers engaged in *Spartina* removal activities. Appropriate safety procedures and equipment, including hearing, eye, hand and foot protection, and proper attire, shall be used by workers to minimize risks associated with manual and mechanical treatment methods. Workers shall receive safety training appropriate to their responsibilities prior to engaging in treatment activities.	Coordinating Entity Project Manager and Spartina control contractor	Coordinating Entity Project Manager	Planning at least one month prior to treatment. Training prior to treatment.
MITIGATION HHM-2: Accidents Associated with Release of Chemicals and Motor Fuel. Contractors and equipment operators on site during treatment activities will be required to have emergency spill cleanup kits immediately accessible. If fuel storage containers are utilized exceeding a single tank capacity of 660 gallons or cumulative storage greater than 1,320 gallons, a Hazardous Materials Spill Prevention Control and Countermeasure Plan (HMSPCCP) would be required and approved by the NCRWQCD. The HMSPCCP regulations are not applicable for chemicals other than petroleum products; therefore, the contractor shall prepare a spill prevention and response plan for the specific chemicals utilized during treatment activities. This mitigation is intended to be carried-out in conjunction with Mitigation WQ-2.	Spartina control contractor	Coordinating Entity Project Manager	Planning at least one month prior to treatment. Implementation during treatment.
Mitigation HHM-3: Worker Health Effects from Herbicide Application. Appropriate health and safety procedures and equipment, as described on the herbicide or surfactant label, including PPE as required, shall be used by workers to minimize risks associated with chemical treatment methods. Mixing and applying herbicides shall be restricted to certified or licensed herbicide applicators	Spartina control contractor	Coordinating Entity Project Manager	During treatment
MITIGATION HHM-4: Avoid Health Effects to the Public and Environment from Herbicide Application. For areas targeted for application of herbicides that are within 500 ft of human sensitive receptors (i.e., houses, schools, hospitals), prepare and implement an herbicide drift management plan to reduce the	Coordinating Entity Project Manager and Spartina control	Coordinating Entity Project Manager	Planning at least one month prior to treatment. Implementation during treatment.

Mitigation	Implementing Responsibility	Monitoring Responsibility	Timing
possibility of chemical drift into populated areas. The Plan shall include the elements listed below. To minimize risks to the public, mitigation measures for chemical treatment methods related to timing of herbicide use, area of treatment, and public notification, shall be implemented by entities engaging in treatment activities as identified below: • Coordinate herbicide applications with the County Agricultural Commissioner. Identify nearby sensitive areas (e.g., houses, schools, hospitals) and/or areas that have non-target vegetation that could be affected by the herbicide and provide advanced notification. • Establish buffer zones to avoid affecting sensitive receptors. • Identify the type of equipment and application techniques to be used in order to reduce the amount of small droplets that could drift into adjacent areas. Consult with herbicide manufacturer for proper application instructions and warnings. • Herbicide shall not be applied when winds are below 3 mile per hour or in excess of 10 mi per hour or when inversion conditions exist (consistent with Supplemental California Manufacturer Labeling), or when wind could carry spray drift into inhabited areas. This condition shall be strictly enforced by the implementing entity. Herbicide applications should not be conducted when surface-based inversions are present. Refer to Section 4.7, Air Quality, for discussion on inversions. The site-specific work plan should identify how meteorological conditions would be obtained. • Signs shall be posted at and/or near any public trails, boat launches, or other potential points of access to herbicide application sites a minimum of one week prior to treatment. • Application of herbicides shall be avoided near areas where the public is likely to contact water or vegetation. • At least one week prior to application, signs informing the public of impending herbicide treatment shall be posted at prominent locations within a conservative 500-foot radius of treatment sites where sensitive receptors could be affected. Schools and hospitals within 500 ft of any treatment site shall be separately noticed at least one week prior to the application. • No surfactants containing nonylphenol ethoxylate will be used.	contractor		
MITIGATION HHM-5: Health Effects to Workers, the Public and the Environment Due to Accidents Associated with Chemical Spartina Treatment. Appropriate health and safety procedures and equipment shall be used to minimize risks	Coordinating Entity Project Manager and	Coordinating Entity Project Manager	Planning at least one month prior to treatment. Implementation during

Mitigation	Implementing Responsibility	Monitoring Responsibility	Timing
associated with *Spartina* treatment methods, including exposure to or spills of fuels, petroleum products, and lubricants. These shall include the preparation of a health and safety plan, a spill contingency plan, and if threshold onsite storage values are exceeded, an HMSPCCP.	Spartina control contractor		treatment.
MITIGATION HHM-6/WQ-4: Assess existing contamination. For projects where ground disturbance methods (such as digging or excavation) or imazapyr application are considered, a preliminary assessment shall be performed to determine the potential for contamination in sediments prior to initiating treatment. The preliminary assessment shall include (1) review of existing site data and (2) evaluation of historical site use and/or proximity to possible contaminant sources. If the preliminary assessment finds a potential for historic sediment contamination, an appropriate sediment sampling and analysis guide shall be followed and implemented, or soil contamination shall be assumed to be present. If contaminants with a known potential for synergistic effects with imazapyr are present or assumed to be present at levels higher than background levels that would result in synergistic effects, an alternative treatment method (that shall not disturb sediment or apply imazapyr) will be implemented, such as repeated top-mowing, or the project shall apply to the Regional Water Board for site-specific Waste Discharge Requirements (WDRs). If contaminants are present or assumed to be present at levels higher than background levels (but below levels that might trigger site cleanup), and these contaminants raise concerns for potential impacts from ground disturbance but not from synergistic effects due to imazapyr application, treatment methods that shall not disturb sediment (e.g., top mowing or imazapyr application) shall be used, or the specific project shall apply to the Regional Water Board for site-specific WDR. If significant contamination that warrants site cleanup is identified, sampling information shall be provided to the U.S. Environmental Protection Agency or other appropriate authority.	Coordinating Entity Project Manager and Spartina control contractor	Coordinating Entity Project Manager	Planning at least one month prior to treatment. Implementation during treatment.
MITIGATION WQ-1: Managed Herbicide Control. Herbicides shall be applied directly to plants and at low or receding tide to minimize the potential application of herbicide directly on the water surface, as well as to ensure proper dry times before tidal inundation. Herbicides shall be applied by a certified applicator and in accordance with application guidelines and the manufacturer label. The Control Program shall obtain coverage under the statewide General NPDES Permit for the Discharge of Aquatic Pesticides for	Coordinating Entity Project Manager and Spartina control contractor	Coordinating Entity Project Manager	Obtain permit coverage prior to treatment. Implementation during treatment.

Mitigation	Implementing Responsibility	Monitoring Responsibility	Timing
Aquatic Weed Control in Waters of the United States (SWRCB 2004). The specific measures that will be required are not known at this time.			
MITIGATION WQ-2: Minimize Herbicide Spill Risks. Herbicides shall be applied by or under the direct supervision of trained, certified or licensed applicators. Herbicide mixtures shall be prepared by, or under the direct supervision of trained, certified or licensed applicators. Storage of herbicides and surfactants on or near project sites shall be allowed only in accordance with a spill prevention and containment plan approved by the NCRWQCD; on-site mixing and filling operations shall be confined to areas appropriately bermed or otherwise protected to minimize spread or dispersion of spilled herbicide or surfactants into surface waters. This mitigation is intended to be carried out in conjunction with Mitigation HMM-2.	Coordinating Entity Project Manager and Spartina control contractor	Coordinating Entity Project Manager	Planning at least one month prior to treatment. Implementation during treatment.
MITIGATION WQ-3: Minimize Fuel and Petroleum Spill Risks. Fueling operations or storage of petroleum products shall be maintained off-site, and a spill prevention and management plan shall be developed and implemented to contain and clean up spills. Transport vessels and vehicles, and other equipment (e.g., mowers) shall not be serviced or fueled in the field except under emergency conditions; hand-held gas-powered equipment shall be fueled in the field using precautions to minimize or avoid fuel spills within the marsh. For example, gas cans will be placed on an oil drip pan with a PIG® Oil-Only Mat Pad placed on top to prevent oil/gas contamination. Only vegetable oil-based hydraulic fluid will be used in heavy equipment and vehicles during *Spartina* control efforts. When feasible, biodiesel will be used instead of petroleum diesel in heavy equipment and vehicles during *Spartina* control efforts. Other, specific BMPs shall be specified as appropriate to comply with the Basin Plan and the other applicable Water Quality Certifications and/or NPDES requirements. This mitigation is intended to be carried out in conjunction with Mitigation HMM-2 in order to reduce potential impacts to less than significant level.	Coordinating Entity Project Manager and Spartina control contractor	Coordinating Entity Project Manager	Planning at least one month prior to treatment. Implementation during treatment.
MITIGATION WQ-6: Designate Ingress/Egress Routes. Designated ingress/egress routes shall be established at control sites to minimize temporarily disturbed areas. Where areas adjacent to staging and stockpile areas are erosion prone, the extent of staging and stockpile areas shall be minimized by flagging their boundaries. An erosion/sediment control plan (ESCP) shall be developed for erosion prone areas outside the treatment	Coordinating Entity Project Manager and Spartina control contractor	Coordinating Entity Project Manager	Routes shall be established during planning, at least one month prior to treatment. Implementation during treatment.

Mitigation	Implementing Responsibility	Monitoring Responsibility	Timing
area where greater than ¼ acre of ground disturbance may occur as a result of ingress/egress, access roads, staging and stockpile areas. The ESCP shall be developed by a qualified professional and identify BMPs for controlling soil erosion and discharge of treatment-related contaminants. The ESCP shall be prepared prior to any treatment activities, and implemented during construction.			
MITIGATION WQ-7: Removal of Wrack. During site specific planning, tidal circulation will be visually assessed. In areas with relatively low tidal circulation, it will either be assumed that DO levels are depressed or monitoring will be conducted to determine if DO levels are depressed. In treatment areas located within or adjacent to waters known or expected to have depressed DO, if wrack is generated during the treatment process, the wrack shall be removed from the treatment area subject to tidal inundation or mulched finely and left in place.	Coordinating Entity Project Manager and Spartina control contractor	Coordinating Entity Project Manager	Identification of areas of concern during planning, at least one month prior to treatment. Implementation during treatment.
MITIGATION WQ-8: Approval of Structures in Floodplains. Temporary structures used to impound water for submerging *Spartina* including but not limited to earthen dikes, cofferdams, inflatable dams, geotextile tubes or concrete ecology blocks that are proposed for placement in a regulatory FEMA flood zone shall be reviewed and approved by the local floodplain administrator prior to placement.	Coordinating Entity Project Manager	Coordinating Entity Project Manager	Approval prior to treatment
MITIGATION LU-1: Use Certified Herbicide Applicators. Herbicides will only be applied by certified applicators.	Spartina control contractor	Coordinating Entity Project Manager	During treatment
MITIGATION LU-2: Compliance Monitors. Applicators shall be assigned a compliance monitor who observes that spray does not reach agricultural fields.	Coordinating Entity Project Manager and Spartina control contractor	Coordinating Entity Project Manager	During treatment
MITIGATION LU-3: Mechanical Methods near Agriculture. If crops (including aquaculture crops such as oysters and clams) are growing in the vicinity of spraying, such that these crops would be more difficult to sell even if herbicides are undetectable, mechanical methods of treatment shall be selected.	Coordinating Entity Project Manager	Coordinating Entity Project Manager	During planning, at least one month prior to treatment

Mitigation	Implementing Responsibility	Monitoring Responsibility	Timing
MITIGATION LU-4: Posting Notices and Limiting Access. Public safety shall be ensured by posting notices and limiting access during treatment periods. Public notice shall be posted at the entrances of public lands, at trailheads, and on the websites of agencies responsible for the public lands, such as HBNWR. If members of the public access lands during treatment, the field supervisor shall have the authority to ask them to leave for their safety.	Coordinating Entity Project Manager and Spartina control contractor	Coordinating Entity Project Manager	Post notices one week prior to treatment. Monitor public access during treatment.
MITIGATION LU-5: Do not treat Spartina during peak public use periods: Although public use is minimal in the salt marshes where Spartina primarily occurs, there is some use, particularly by waterfowl hunters. Spartina treatment will not occur in waterfowl hunting areas during periods of time when hunters are active. If other peak periods of public use are identified in Spartina infested areas then control efforts will also avoid these time periods.	Coordinating Entity Project Manager	Coordinating Entity Project Manager	During treatment
MITIGATION N-1: Use Relatively Quiet Brushcutters. All brushcutters shall be new and quieter models, with noise not exceeding 90 dB.	Coordinating Entity Project Manager and Spartina control contractor	Coordinating Entity Project Manager	During treatment
MITIGATION N-2: Selective Use of the Marsh Master. Avoid treatment that uses the Marsh Master, if residential receptors are within 800 ft.	Coordinating Entity Project Manager	Coordinating Entity Project Manager	During planning, at least one month prior to treatment
MITIGATION N-3: Limit Hours of Operation. Within 3,200 ft of homes, hours of operation shall be within times that residents would be the least disturbed, as in during work and school hours, and avoiding early morning or early evening.	Coordinating Entity Project Manager and Spartina control contractor	Coordinating Entity Project Manager	During treatment